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EDUCATION

1993 **Ph.D.**, Graduate Program in Hydrology/Hydrogeology**,** Mackay School of Mines, University of Nevada, Reno, Dissertation: *Rare earth elements in terrestrial waters: Speciation modeling in acidic to alkaline waters*.
Dissertation Advisor: Dr. W. Berry Lyons

1988 **M.S.**, Geology and Geophysics, Boston College, Chestnut Hill, Massachusetts, Thesis: *Geochemistry and tectonic setting of the Hunting Hill Greenstone, Blackstone Group, Rhode Island.*
Thesis Advisors: Drs. James W. Skehan and Rudolph Hon

1985 **B.S.**, Geology, Magna cum Laude, Phi Beta Kappa, Geology, University of New Hampshire, Durham, New Hampshire

EXPERIENCE

2025 Co-Chief Scientist, International Ocean Drilling Project[3] – National Science Foundation Expedition 501, New England Shelf Hydrogeology

2020 – present Professor of Geochemistry, School for the Environment, University of Massachusetts, Boston, Massachusetts

2020 – present Director of the Environmental Analytical Facility, School for the Environment, University of Massachusetts, Boston, Massachusetts

2020 – present Professor of Geochemistry, Intercampus Marine Sciences Graduate Program, University of Massachusetts System, Boston, Massachusetts

2016 – present Co-Editor-in-Chief, *Chemical Geology*

2015 – present Professional Geologist, State of Louisiana, License # 932

2014 – 2020 Cochran Family Professor in Earth and Environmental Sciences, Department of Earth and Environmental Sciences, Tulane University, New Orleans, Louisiana

2014 – 2017 Associate Editor, *American Mineralogist*

2009 – 2020 Professor of Geochemistry and Chemical Hydrogeology, Department of Earth and Environmental Sciences, Tulane University, New Orleans, Louisiana

2007 - 2009 Associate Professor of Geochemistry and Chemical Hydrogeology, Department of Earth and Environmental Sciences, Tulane University, New Orleans, Louisiana

2007 - 2010 Professor of Geochemistry and Chemical Hydrogeology (Adjunct), Department of Earth and Environmental Sciences, The University of Texas at Arlington, Arlington, Texas

2007 Professor of Geochemistry and Chemical Hydrogeology, Department of Earth and Environmental Sciences, The University of Texas at Arlington, Arlington, Texas

2005 - 2022 Associate Editor, *Geochimica et Cosmochimica Acta*

2002 - 2007 Associate Professor of Geochemistry and Chemical Hydrogeology, Department of Earth and Environmental Sciences, The University of Texas at Arlington, Arlington, Texas

2001 - 2002 Graduate Program Director, M.S. Program in Geology, Department of Ocean, Earth, and Atmospheric Sciences, Old Dominion University, Norfolk, Virginia

1998-2002 Assistant Professor, Department of Ocean, Earth, and Atmospheric Sciences, Old Dominion University, Norfolk, Virginia

1997-1999 Graduate Faculty, Doctoral Program in Environmental Chemistry, University and Community College System of Nevada

1995-1998 Research Geochemist, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas

1995 University and Community College System of Nevada Research Affairs Council Hydrology, Geochemistry, and Climatology Representative for the University of Nevada, Las Vegas to the Yucca Mountain Project Studies Office of the U. S. Department of Energy

1994-1998 Graduate Faculty, Graduate Program in Water Resources Management, University of Nevada, Las Vegas

1993-1995 Post Doctoral Scholar, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas

1990-1993 Graduate Research Fellow, University of Nevada, Reno

1990 Hydrologist, Governor's Intern Program, Arizona Department of Water Resources, Phoenix, Arizona

HONORS AND AWARDS

2024 Fellow, American Geophysical Union. Awarded for fundamental advances in understanding the chemistry that underlies rare earth and other critical element tracers in terrestrial and marine aquatic systems.

2018 School of Science and Engineering, Outstanding Researcher Award, Tulane University.

2015 Clair C. Patterson Medal. Awarded by the Geochemical Society in recognition of an

innovative breakthrough of fundamental significance in environmental geochemistry within the past decade.

2015 Fellow, Geochemical Society
2015 Fellow, European Association of Geochemistry
2014 Fellow, International Association of GeoChemistry
2010 Fellow, Geological Society of America
2006 Research Excellence Award, The University of Texas at Arlington
1999 Summer Research Fellowship Award, Old Dominion University
1990 Director's Award for Graduate Research, University of Nevada
1985 Phi Beta Kappa, University of New Hampshire
1984 Mortar Board Honor Society, University of New Hampshire

RESEARCH:

Current

2023-2025 **Vanadium speciation in sulfidic environments: Inferring the origin of metalliferous source rocks and petroleum**. Project location: University of Massachusetts Boston. American Chemical Society, The Petroleum Research Fund. $110,000.00. Duration 24 months. State date 1 September 2023.

2021-2024 **Acquisition of a high resolution inductively coupled plasma mass spectrometer and ion chromatograph for environmental biogeochemical research and teaching at UMass Boston**. Project location: University of Massachusetts Boston. With Helen Poynton (Co-PI; UMass Boston) National Science Foundation, Earth Sciences Instrumentation and Facilities Program ($491,796.00), Duration 36 months. Start date: 15 August 2021

Pending

2026- 2031 **TS: Establishing a full-time technician to support and advance biogeochemical research and teaching at UMass Boston**. Project Location: University of Massachusetts Boston. With Juanita Urban-Rich (Co-PI, UMass Boston) and Helen Poynton (Co-PI: UMass Boston). National Science Foundation, EAR Instrumentation and Facilities Program ($917,062). 60 months.

2026-2028 **SEA-CARE: Socio-environmental knowledge, Engagement and Adaptation for Coastal Acidification REsilience in Duxbury Bay.** Project Location: University of Massachusetts Boston. With Georgia Mavrommati (PI: UMass Boston), Pamela DiBona (Co-PI: MassBays National Estuaries Partnership). NOAA. ($1,057,646). 36 months

2026- 2028 **Collaborative Research: Investigating the effect of aerobic methylotrophic bacteria on the geochemical cycling of rare earth elements within inland waters**. Project Location: University of Massachusetts Boston. With Jennifer Glass (Co-PI; Georgia Tech). Plan to submit to National Science Foundation, Life and Environments Through Time Program, 36 months. ($1,167,712.00; UMass Boston's share = $760,635.00). Start date 1 January 2026.

In Preparation

2025-2028 **Collaborative Research: Investigation how evolving groundwater compositions influence lanthanide content and fractionation patterns of kaolinite-rich, ion-**

adsorption regolith deposits. Project Location: University of Massachusetts Boston. With Crawford Elliott (Co-PI: Georgia State University). Plan to submit to National Science Foundation, Water, Landscapes and Critical Zone Processes Program. 36 months.

2026-2029 **Collaborative Research: Acidification of northeastern lakes from rising anthropogenic-sourced atmospheric carbon dioxide and its impact of metal speciation and toxicity and local economies**. Plan to submit to National Science Foundation. Geobiology and Low-temperature Geochemistry.

2026-2029 **Collaborative Research: How alkalinity and meromixis act to enhance dissolved trace elements in soda lakes**. Plan to submit to National Science Foundation.

Previous Funding

2019-2022 **OCE-2037556: Collaborative Research: How and why ε_{Nd} tracks ocean circulation**. Project location: Tulane University – Transferred to the University of Massachusetts Boston in May 2020. With Brian Haley (PI: Oregon State University) and James McManus (Co-PI: Bigelow Laboratory for Ocean Sciences). National Science Foundation, Chemical Oceanography Program and Marine Geology and Geophysics Programs ($889,903.00; UMass Boston's share = $196,926.00). Start date 15 May 2019.

2017-2023 **EAR-2037553: Quantifying thioarsenate formation constants to advance understanding of arsenic biogeochemical cycling in anoxic waters**. Project location: Tulane University – Transferred to the University of Massachusetts Boston in May 2020. National Science Foundation, Geobiology and Low-Temperature Geochemistry Program ($251,385.00). Duration 36 months. Start date 1 September 2017.

2016-2018 **Tungsten in Petroleum Systems: A Potential Paleo-Environment Indicator**. Project location: Tulane University. American Chemical Society, The Petroleum Research Fund. $110,000.00. Duration 24 months. State date 1 September 2016.

2012-2016 **EAR-1141692: Collaborative Research: Are buried paleochannels effective reactors for water and solute transport in the deltaic subterranean estuary?** With Alex Kolker (PI; Louisiana Universities Marine Consortium) and Jaye Cable (Co-PI; University of North Carolina, Chapel Hill). Project location: Tulane University. National Science Foundation, Hydrologic Sciences Program $771,551.00 (Tulane University's share = $233,337.00). Duration 36 months. Start date 1 February 2012. One-year, no-cost extension.

2012-2015 **SES-1204796: WSC-Category 1: From natural wetland to murky water: Cross-disciplinary analysis of a drowning urbanized coast.** With Michael J. Blum (Co-PI; Tulane University), Mark S. Davis (Co-PI; Tulane University), Andrew J. Englande (Co-PI; Tulane University), and Kevin F. Gotham (Co-PI; Tulane University), Project location: Tulane University, National Science Foundation. $149,841.00. Duration 24 months. Start date 1 July 2012. (1 year no cost extension)

2010-2013 **EAR-1014946: Collaborative Research: Chemical hydrogeologic investigations of tungsten: Field, laboratory, and modeling studies of an emerging environmental contaminant.** With Saugata Datta (Co-PI; Kansas State University), Project location: Tulane University. National Science Foundation, Hydrologic Sciences Program, $499,262.00 (Tulane University's share = $308,979.00). Duration 36 months. Start date 1 September 2010. (1 year no cost extension).

2008-2011 **OCE-0825920: ETBC: Collaborative Research: Evaluating the Role of Submarine Groundwater Discharge in the Oceanic Nd Budget.** With D. J. Burdige (Co-PI; Old Dominion University), Project location: Tulane University, National Science Foundation, Chemical Oceanography Program, $620,393.00 (Tulane University's share = $356,552.00). Duration 36 months (Start date 1 October 2008). Currently on a no-cost extension until 30 September 2012.

2010 **EAR-1029246: Acquisition of a high-performance liquid chromatograph for the enhancement of biogeochemical education and research of trace element speciation in environmental systems**. Project location: Tulane University. National Science Foundation, Earth Sciences Instrumentation and Facilities Program, $103,732.00. Duration 12 months (Start date 1 October 2010).

2008-2009 **Concentrations and speciation of potentially toxic trace elements in waters of an urban estuary; Bayou Bienvenue, New Orleans, Louisiana.** Long-Term estuary Assessment Group, Tulane/Xavier Center for Bioenvironmental Research. Project location: Tulane University. $20,000.00. Duration: 12 months

2007-2008 **EAR-0805331: Towards a Hydrochemical Transport Model for Rare Earth Elements in Groundwater Flow Systems: Coupling Field, Laboratory, and Computational Techniques**. Project location: Tulane University, National Science Foundation Hydrologic Sciences Program, $287,578.00. Duration: 36 months. (Start date 20 February 2008). Transfer of EAR-0538084.

2005-2007 **EAR-0805332: Hydrogeochemical Evolution of Arsenic Concentrations and Speciation Along Groundwater Flow Paths: Linking Aqueous and Solid Phase Arsenic Speciation in Sedimentary Aquifers**. Project location: Tulane University, National Science Foundation Hydrologic Sciences Program, $111,626.00. Duration: 36 months (Start date 23 May 2008). Transfer of EAR-0510697.

2006-2007 **EAR-0538084: Towards a Hydrochemical Transport Model for Rare Earth Elements in Groundwater Flow Systems: Coupling Field, Laboratory, and Computational Techniques**. Project location: The University of Texas at Arlington, National Science Foundation Hydrologic Sciences Program, $400,000.00. Duration: 36 months. (Start date 1 March 2006).

2005-2007 **EAR-0510697: Hydrogeochemical Evolution of Arsenic Concentrations and Speciation Along Groundwater Flow Paths: Linking Aqueous and Solid Phase Arsenic Speciation in Sedimentary Aquifers**. Project location: The University of Texas at Arlington, National Science Foundation Hydrologic Sciences Program, $322,505.00. Duration: 36 months.

2005-2006 **Request for an HPLC-ICP-MS system for trace element concentration and speciation analysis**. Project location: The University of Texas at Arlington, University of Texas System's competitive STARS Retention Fund Program, $348,000.00. Duration: 12 months.

2005-2007 **Determining the Redox Properties of Yucca Mountain Related Groundwater using Trace Element Speciation for Predicting the Mobility of Nuclear Waste**. Project location: University of Nevada, Las Vegas and The University of Texas at Arlington. With (PI) and V. F. Hodge. Office of Science and Technology and International, Lawrence Berkeley Laboratory, Department of Energy, $633,590.00. Duration: 24

months.

2002-2005 **EAR-0303761 & EAR-0126222: Quantifying Rare Earth Element Transport in Aquifers Using Field, Laboratory, and Numerical Approaches**. Project location: The University of Texas at Arlington, National Science Foundation Hydrologic Sciences Program, $238,783.00. Duration: 36 months. Transferred from Old Dominion University to The University of Texas at Arlington

2001-2002 **Hydrogeologic Assessment, Monitoring, and Numerical Analysis of the Weanack Mineland Reclamation Research Site, Charles City County, Virginia**. With G. R. Whittecar, Weanack Land Limited Partners, $149,999.00. Duration: 24 months

2000-2001 **EAR-0001086: Investigation of the Solution Complexation Behavior of the Rare Earth Elements with Naturally Occurring Organic Ligands in Natural Waters**. With J. R. Donat. Project location: Old Dominion University. National Science Foundation, Hydrologic Sciences, $66,844.00. Duration: 12 months

1999-2001 **OISE-9906113: US-Kuwait Cooperative Research: Planning and preliminary sampling phase for trace element and isotopic geochemical studies of coastal aquifers in Kuwait**. National Science Foundation, International Programs, $3,645.00. Duration: 12 months

2000 **OISE-9912159: Planning Phase for Hydrogeologic and Hydrochemical Investigation of the Cuatro Ciénegas Groundwater System, México**. Project location: Old Dominion University. National Science Foundation, International Programs, $4,144.00. Duration: 12 months

1997-1999 **Modeling Groundwater Flow in the Vicinity of Yucca Mountain, Nevada using Aqueous Trace Element Geochemistry and Multivariate Statistics: Understanding the Groundwater Flow Regime from the Water-Rock Interaction Approach**. With Klaus J. Stetzenbach, and Vern F. Hodge. U. S. Department of Energy. 1997-1999, $300,000.00. Duration 36 months

PUBLICATIONS

Peer-Reviewed Journal Articles

(1) Johannesson, K. H., Lyons, W. B., Fee, J. H., Gaudette, H. E., and McArthur, J. M., 1994. Geochemical processes affecting the acidic groundwater of Lake Gilmore, Yilgarn Block, Western Australia: a preliminary study using neodymium, samarium, and dysprosium, *Journal of Hydrology*, **154**, 271-289.

(2) Johannesson, K. H. and Lyons, W. B., 1994. The rare earth element geochemistry of Mono Lake water and the importance of carbonate complexing, *Limnology and Oceanography*, **39**, 1141-1154.

(3) Johannesson, K. H., Lyons, W. B., and Bird, D. A., 1994. Rare earth element concentrations and speciation in alkaline lakes from the western U.S.A., *Geophysical Research Letters*, **21**, 773-776.

(4) Johannesson, K. H. and Lyons W. B., 1995. Rare earth element geochemistry of Colour Lake, an acidic freshwater lake on Axel Heiberg Island, Northwest Territories, Canada, *Chemical*

Geology, **119**, 209-223.

(5) Lent, R. M., Lyons, W. B., Showers, W. J., and **Johannesson, K. H**., 1995. Late Holocene paleoclimatic and paleobiologic records from sediments of Devils Lake, North Dakota, *Journal of Paleolimnology*, **13**, 193-207.

(6) Johannesson, K. H., Lyons, W. B., Stetzenbach, K. J., and Byrne, R. H., 1995. The solubility control of rare earth elements in natural terrestrial waters and the significance of PO_4^{3-} and CO_3^{2-} in limiting dissolved rare earth concentrations: A review of recent information, *Aquatic Geochemistry*, **1**, 157-173.

(7) Johannesson, K. H., Stetzenbach, K. J., and Hodge, V. F., 1995. Speciation of the rare earth element neodymium in groundwaters of the Nevada Test Site and Yucca Mountain and implications for actinide solubility. *Applied Geochem*istry, **10**, 565-572.

(8) Kreamer, D. K., Hodge, V. F., Rabinowitz, I., **Johannesson, K. H**., and Stetzenbach, K. J., 1996. Trace element geochemistry in water from selected springs in Death Valley National Park, California, *Ground Water*, **34**, 95-103.

(9) Johannesson, K. H., Stetzenbach, K. J., Kreamer, D. K., and Hodge, V. F., 1996. Multivariate statistical analysis of arsenic and selenium concentrations in groundwaters from south-central Nevada and Death Valley, California, *Journal of Hydrology*, **178**, 181-204.

(10) Johannesson, K. H., Stetzenbach, K. J., Hodge, V. F., and Lyons, W. B., 1996. Rare earth element complexation behavior in circumneutral pH groundwaters: Assessing the role of carbonate and phosphate ions. *Earth and Planetary Science Letters*, **139**, 305-319.

(11) Hodge, V. F., **Johannesson, K. H.**, and Stetzenbach, K. J., 1996. Rhenium, molybdenum, and uranium in groundwater from the southern Great Basin, U.S.A.: Evidence for conservative behavior. *Geochimica et Cosmochimica Acta*, **60**, 3197-3214.

(12) Johannesson, K. H., Stetzenbach, K. J., Hodge, V. F., and Lyons, W. B., 1996. Reply to comment on the paper "Rare earth element complexation behavior in circumneutral pH groundwaters: Assessing the role of carbonate and phosphate ions. *Earth and Planetary Science Letters*, **145**, 139-141.

(13) Johannesson, K. H., Lyons, W. B., Yelken, M. A., Gaudette, H. E., and Stetzenbach, K. J., 1996. Geochemistry of the rare earth elements in hypersaline and dilute acidic natural terrestrial waters: Complexation behavior and middle rare earth enrichments, *Chemical Geology*, **133**, 125-144.

(14) Johannesson, K. H. and Zhou, X., 1997. Geochemistry of the rare earth elements in natural terrestrial waters: A review of what is currently known. *Chinese Journal of Geochemistry*, **16**, 20-42.

(15) Johannesson, K. H., Stetzenbach, K. J., Hodge, V. F., Kreamer, D. K., and Zhou, X. 1997. Delineation of groundwater flow systems in the southern Great Basin using aqueous rare earth element distributions. *Ground Water*, **35**, 807-819.

(16) Johannesson, K. H., Stetzenbach, K. J., and Hodge, V. F., 1997. Rare earth elements as geochemical tracers of regional groundwater mixing. *Geochimica et Cosmochimica Acta*, **61**, 3605-3618.

(17) Johannesson, K. H., Lyons, W. B., Huey, S., Doyle, G. A., Swanson, E. E., and Hackett, E., 1997. Oxyanion concentrations in eastern Sierra Nevada rivers - 2. Arsenic and phosphate. *Aquatic Geochemistry*, **3**, 61-97.

(18) Johannesson, K. H., Stetzenbach, K. J., and Hodge, V. F., 1998. Reply to comment by R. H. Byrne and J. Schijf on "Rare earth elements as geochemical tracers of regional groundwater mixing". *Geochimica et Cosmochimica Acta*, **62**, 2201-2206.

(19) Hodge, V. F., Stetzenbach, K. J., and **Johannesson, K. H**., 1998. Similarities in the chemical composition of carbonate groundwater and seawater. *Environmental Science and Technology*, **32**, 2481-2486.

(20) Johannesson, K. H. and Zhou, X., 1999. Origin of middle rare earth element enrichments in acid waters of a Canadian High Arctic lake. *Geochimica et Cosmochimica Acta*, **63** 153-165.

(21) Stetzenbach, K. J., Farnham, I. M., Hodge, V. F., and **Johannesson, K. H**., 1999. Using multivariate statistical analysis of groundwater major cation and trace element concentrations to evaluate groundwater flow in a regional aquifer. *Hydrological Processes*, **13,** 2655-2673.

(22) Johannesson, K. H., Farnham, I. M., Guo, C., and Stetzenbach, K. J., 1999. Rare earth element fractionation and concentration variations along a groundwater flow path within a shallow, basin-fill aquifer, southern Nevada, USA. *Geochimica et Cosmochimica Acta*, **63** 2607-2708.

(23) Johannesson K. H., Zhou X., Guo C., Stetzenbach K. J., and Hodge V. F., 2000. Origin of rare earth element signatures in groundwaters of circumneutral pH from southern Nevada and eastern California. *Chemical Geology* **164**, 239-257.

(24) Zhou X., Stetzenbach K. J., **Johannesson K. H.**, and Farnham I. M., 2000. Major ion chemistry of groundwaters from southern Nevada and eastern California. *Chinese Journal of Geochemistry* **19**, 1-22.

(25) Farnham, I. M., Stetzenbach, K. J., Singh, A. K., and **Johannesson K. H**., 2000. Deciphering groundwater flow systems in Oasis Valley, Nevada using trace element chemistry, multivariate statistics, and GIS. *Mathematical Geology* **32**, 943-968.

(26) Johannesson, K. H., Lyons, W. B., Graham, E. Y., and Welch, K. A., 2000. Oxyanion concentrations in eastern Sierra Nevada rivers – 3. Boron, molybdenum, vanadium, and tungsten. *Aquatic Geochemistry* **6**, 19-46.

(27) Johannesson, K. H. and Hendry, M. J. 2000. Rare earth element geochemistry of groundwaters from a thick till and clay-rich aquitard sequence, Saskatchewan, Canada. *Geochimica et Cosmochimica Acta* **64**, 1493-1509.

(28) Stetzenbach, K. J., Hodge, V. F., Guo, C., Farnham, I. M., and **Johannesson, K. H**., 2001. Geochemical and statistical evidence of deep carbonate groundwater within overlying volcanic rock aquifers/aquitards of southern Nevada, USA. *Journal of Hydrology* **243**, 254-271.

(29) Farnham, I. M., Stetzenbach, K. J., Singh, A. S., and **Johannesson, K. H.**, 2002. Treatment of nondetects in multivariate analysis of groundwater geochemistry data. *Chemometrics and Intelligent Laboratory Systems*. **60**, 265-281

(30) Tang, J. and **Johannesson, K. H.,** 2003. Speciation of rare earth elements in natural terrestrial waters: assessing the role of dissolved organic matter from the modeling approach. *Geochimica et Cosmochimica Acta* **67**, 2321-2339.

(31) Ojiambo, S. W., Lyons, W. B., Welch, K. A., Poreda, R. J., and **Johannesson, K. H.**, 2003. Strontium isotopes and rare earth elements as tracers of groundwater – lake water interactions, Lake Naivasha, Kenya. *Applied Geochemistry* **18**, 1789-1805.

(32) Farnham, I. M., **Johannesson, K. H.**, Singh, A. K., Hodge, V. F., and Stetzenbach, K. J., 2003. Factor analytical approaches for evaluating groundwater trace element chemistry data. *Analytica Chimica Acta* **490**, 123-138.

(33) Johannesson, K. H., Tang, J., Daniels, J. M., Bounds, W. J., and Burdige, D. J., 2004. Rare earth element concentrations and speciation in organic-rich blackwaters of the Great Dismal Swamp, Virginia, USA. *Chemical Geology* **209**, 271-294.

(34) Johannesson, K. H., Cortés A., and Kilroy, K. C., 2004. Reconnaissance isotopic and hydrochemical study of Cuatro Ciénegas groundwater, Coahuila, México. *Journal of South American Earth Science* **17**, 171-180.

(35) Tang, J., Whittecar, G. R., **Johannesson, K. H.**, and Daniels, W. L., 2004. Potential contaminants at the Weanack Mineland Reclamation Site, Charles City County, Virginia as revealed by sequential extraction. *Geochemical Transactions* **5**, 49-60.

(36) Tang, J. and **Johannesson, K. H**., 2005. Adsorption of rare earth elements onto the Carrizo Sand: Experimental investigations and modeling with surface complexation. *Geochimica et Cosmochimica Acta*, **69**, 5259-5272.

(37) Ramos-Leal, J. A., Durazo, J., Gonzalez-Moran, T., Ramírez-Guzman, A., **Johannesson, K. H.**, Cortés, A., 2005. Decay of chloride content of ground water due to excessive production of a well field near Leon, Mexico. *Geofísica Internacional*, **44**, 385-390.

(38) Tang, J. and **Johannesson, K. H.**, 2006. Controls on the geochemistry of rare earth elements along a groundwater flow path in the Carrizo Sand aquifer, Texas, USA. *Chemical Geology*, **225**, 156-171.

(39) Johannesson, K. H., Hawkins, D. L., Jr., and Cortés A., 2006. Do Archean chemical sediments record ancient seawater rare earth element patterns? *Geochimica et Cosmochimica Acta*, **70**, 871-890.

(40) Haque, S. and **Johannesson, K. H.**, 2006. Arsenic concentrations and speciation along a groundwater flow path: The Carrizo Sand aquifer, Texas, USA. *Chemical Geology* **228**, 57-71.

(41) Haque, S. E., and **Johannesson, K. H.**, 2006. Concentration and speciation of arsenic along a groundwater flow path in the Upper Floridan aquifer, Florida, USA. *Environmental Geology* **50**, 219-228.

(42) Johannesson, K. H., and Burdige, D. J., 2007. Balancing the global oceanic neodymium budget: Evaluating the role of groundwater. *Earth and Planetary Science Letters* **253**, 129-142.

(43) Johannesson, K. H., and Tang, J., 2007. Comments on "Effects of organic ligands on fractionation of rare earth elements (REEs) in hydroponic plants: An application to the determination

of binding capacities by humic acid for modeling" by ShiMing Ding, Tao Liang, ChaoSheng Zhang, JunCai Yan, and ZiLi Zhang. *Chemosphere* **68**, 1392-1393..

(44) Bounds, W. J., and **Johannesson, K. H.**, 2007. Arsenic addition to soils from airborne coal dust originating at a major coal shipping terminal. *Water, Air, and Soil Pollution* **185**, 195-207.

(45) Haque, S. E., Tang, J., Bounds, W. J., Burdige, D. J., and **Johannesson, K. H**., 2007. Arsenic geochemistry of the Great Dismal Swamp, Virginia, USA: Possible organic matter controls. *Aquatic Geochemistry* **13**, 289-308.

(46) Basu, R., Haque, S. E., Tang, J., Ji., J., and **Johannesson, K. H**., 2007. Evolution of selenium concentrations and speciation in groundwater flow systems: Upper Floridan (Florida) and Carrizo Sand (Texas) aquifers. *Chemical Geology* **246**, 147-169.

(47) Ramos-Leal, J. A., Durazo, J., González-Morán, T., Juárez-Sánchez, F., Cortés-Silva, A., and **Johannesson, K. H**., 2007. Hydrogeological evidence for regional flow mixing in the La Muralla aquifer, Guanajuato (in Spanish). *Revista Mexicana de Ciencias Geológicas* **24**, 293-305.

(48) Cizdziel, J.V., Guo, C., Steinberg, S.M., Yu, Z., and **Johannesson, K.H**., 2008. Chemical and colloidal analyses of natural seep water collected from the Exploratory Studies Facility inside Yucca Mountain, Nevada, USA. *Environmental Geochemistry and Health* **30**, 31-44.

(49) Leybourne, M. I., Peter, J. M., **Johannesson, K. H**., and Boyle, D. R., 2008. The Lake St. Martin bolide has big impact on groundwater fluoride concentrations. *Geology* **36**, 115-118.

(50) Haque, S. E., Ji, J., and **Johannesson, K. H.**, 2008, Evaluating mobilization and transport of arsenic in sediments and groundwaters of Aquia aquifer, Maryland, USA. *Journal of Contaminant Hydrology* **99**, 68-84.

(51) Leybourne, M. I. and **Johannesson, K. H**., 2008. Rare earth elements (REE) and yttrium in stream waters, stream sediments, and Fe-Mn oxyhydroxides: Fractionation, speciation, and controls over REE+Y patterns in the surface environment. *Geochimica et Cosmochimica Acta* **72**, 5962-5983.

(52) Johannesson, K. H. and Tang, J., 2009. Conservative behavior of arsenic and other oxyanion – forming trace elements in an oxic groundwater flow system. *Journal of Hydrology* **378**, 13-28.

(53) Tang, J. and **Johannesson, K. H**., 2010a. Ligand extraction of rare earth elements from aquifer sediments: Implications for rare earth element complexation with organic matter in natural waters. *Geochimica et Cosmochimica Acta* **74**, 6690-6705.

(54) Tang, J. and **Johannesson, K. H.**, 2010b. Rare earth element adsorption onto Carrizo Sand: Influence of strong surface complexation. *Chemical Geology* **279**, 120-133.

(55) Pearcy, C. A., Chevis, D. A., Haug, J. T., Jeffries, H. A., Yang, N., Tang, J., Grimm, D. A., and **Johannesson, K. H.**, 2011. Evidence of microbially mediated arsenic mobilization from sediments of the Aquia aquifer, Maryland, USA. *Applied Geochemistry* **26**, 575-586.

(56) Johannesson, K. H., Chevis, D. A., Burdige, D. J., Cable, J. E., Martin, J. B., and Roy, M., 2011.

Submarine groundwater discharge is an important net source of light and middle REEs to coastal waters of the Indian River Lagoon, Florida, USA. *Geochimica et Cosmochimica Acta* **75**, 825-843.

(57) Willis, S. S. and **Johannesson, K. H.**, 2011. Controls on the geochemistry of rare earth elements in sediments and groundwaters of the Aquia aquifer, Maryland, USA. *Chemical Geology* **285**, 32-49.

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(135) Hossain, Md. M., Jahan, I., Al Nahian, A., **Johannesson, K. H**., Maxwell, S. J., and Zhu, D., 2025. Distribution of potentially toxic elements in sediments of the municipal river channel (Balu), Dhaka, Bangladesh: Ecological and health risk assessment. *Journal of Contaminant Hydrology* **269,** 1044942. https://doi.org/10.1016/j.jconhyd.2024.104492.

Peer-Reviewed Book Chapters

(1) Hodge, V. F., Stetzenbach, K. J., and **Johannesson, K. H.**, 1996. Initial results for the ICP-MS determination of trace elements in organs of striped bass from Lake Mead, USA. In: J. N. Blancato, R. N. Brown, C. C. Dary, and M. A. Saleh (eds.), *Biomarkers for Agrochemical and Toxic Substances: Applications and Risk Assessment*, American Chemical Society, Symposium Series 643, pp. 180-190.

(2) Johannesson, K. H. and Lyons, W. B., 1999. Rare earth elements in groundwater. In: P. Cook and A. Herczeg (eds.), *Environmental Tracers in Subsurface Hydrology*, Kluwer Academic Publishers (Dordrecht), pp. 485-492.

(3) Farnham, I. M., Singh, A. K., and **Johannesson, K. H**., 1999. Determination of the optimal mixture distribution. In: C. S. Chen, C. A. Brebbia, and D. W. Pepper (eds.), *Boundary Element Technology XIII: Incorporating Methods of Testing for Engineering Integrity*. WIT Press.

(4) Johannesson, K. H., Cortés, A. S., Ramos L., J. A., Ramirez, A. G., and Durazo, J., 2005. Rare earth element geochemistry of groundwater from a rhyolitic aquifer, central México. In: K. H. Johannesson (ed.) *Rare Earth Elements in Groundwater Flow Systems*, Springer (Dordrecht), pp. 187-222**.**

(5) Tang, J. and **Johannesson, K. H.**, 2005. Rare earth element concentrations, speciation, and fractionation along groundwater flow paths: The Carrizo sand (Texas) and Upper Floridan aquifers. In: K. H. Johannesson (ed.) *Rare Earth Elements in Groundwater Flow Systems*, Springer (Dordrecht), pp. 223-251.

(6) Shand, P., **Johannesson, K. H.**, Chudaev, O., Chudaeva, V., and Edmunds, W. M., 2005. Rare earth element contents of high pCO_2 groundwaters of Primorye, Russia: Mineral stability and complexation controls. In: K. H. Johannesson (ed.) *Rare Earth Elements in Groundwater Flow Systems*, Springer (Dordrecht), pp. 161-186.

(7) Zhou, X., Stetzenbach, K. J., Yu, Z., and **Johannesson, K. H.**, 2005. Origin of rare earth element signatures in groundwaters of south Nevada, USA: Implications from batch leach tests using aquifer rocks. In: K. H. Johannesson (ed.) *Rare Earth Elements in Groundwater Flow Systems*, Springer Publishers (Dordrecht), pp. 141-160.

(8) Cortés Silva, A., Ramírez Guzmán, A, Lozano Guzmán, A., and **Johannesson, K. H.**, 2009. Hydrogeoquímica e isótopos ambientales de las fuentes de abastecimiento de la ciudad de

Querétaro (Hydrogeochemical environmental isotopes and sources of supply for the city of Queretaro, in Spanish). In: A. Cortés Silva, J. Arzate Flores, A. A. Lozano Guzmán (Eds.) *Tomo I: El Valle de Querétaro y Su Geoentorno*. Consejo de Ciencia y Tecnologiá del Estado de Querétaro (Querétaro, México), pp. 85-106.

(9) Johannesson, K. H., Telfeyan, K., Chevis, D. A., Rosenheim, B. E., and Leybourne, M. I., 2014. Rare earth elements in stromatolites – 1. Evidence that modern terrestrial stromatolites fractionate rare earth elements during incorporation from ambient waters. In: Y. Dilek and H. Furnes (eds.) *Archean Earth and Early Life*. Springer (Dordrecht), pp. 385-411.

(10) Leybourne, M. I., **Johannesson, K. H**., and Asfaw, A., 2014. Chapter 5: Measuring arsenic speciation in environmental media: Sampling, preservation, and analysis. In: R. J. Bowell, C. N. Alpers, H. E. Jamieson, D. K. Nordstrom, and J. Majzlan (eds.) *Environmental Geochemistry, Mineralogy, and Microbiology of Arsenic*. Reviews in Mineralogy and Geochemistry, v. 79, pp. 371-390.

(11) Hayes, C. T., Wen, L.-S., Lee, C.-P., Santschi, P. H., and **Johannesson, K. H**., 2019. Trace metals in the Gulf of Mexico: synthesis and future directions. In: T. S. Bianchi (ed.) *Gulf of Mexico: Origin, Waters, and Biota, Vol. 5, Chemical Oceanography*. Texas A&M Press (College Station, TX), pp. 93-119.

(12) Johannesson, K. H., 2025. Environmental and green chemistry of the rare earth elements. In: B. Török (ed.) *Encyclopedia of Green Chemistry*, vol. 1, Elsevier, pp. 475-482. https://doi.org/10.1016/B978-0-443-15742-4.00111-3.

Books

(1) Johannesson, K. H., 2005. *Rare Earth Elements in Groundwater Flow Systems*. (Editor) Springer (Dordrecht). 293 pp.

(2) Tang, J. and **Johannesson, K. H.**, 2009. *Geochemistry of the Rare Earth Elements in Natural Terrestrial Waters*. VDM Verlag Dr. Müller (Saarbrücken, Germany), 107 pp.

Papers in Review

(1) Dii Horne, J., Costa, L. P., Haley, B., McManus, J., and **Johannesson, K. H**., in review. A surface complexation model for simulating sorption of rare earth elements onto goethite in low ionic strength (I = 0.01 M) aqueous solutions for use in groundwater flow systems. Submitted to *Chemical Geology*.

(2) Voinot, A., Pipe, A. B., Leybourne, M. I., **Johannesson, K. H**., Hannigan, R. E., and Layton-Matthews, D., in review. Application of thallium isotopes to the study of metal enrichment, paleoredox and diagenesis in North American black shales. Submitted to *Geochimica et Cosmochimica Acta*.

(3) Boumaiza, L., Ammar, S. B., Chesnaux, R., Mayer, B., Sacchi, E., Huneau, F., Garel, E., **Johannesson, K. H**., Stotler, R. L., Khouatmia, M., Nlend, B., Knöller, K., and Stumpp, C., in review. An isotope mixing-based clustering approach for an improved apportionment of nitrate sources in a groundwater system impacted by multiple anthropogenic stressors. Submitted to *Journal of Hazardous Materials*.

Papers in Preparation

(1) Johannesson, K. H. and White, C. D., in prep. Reactive transport modeling of rare earth elements in groundwaters: Insights into the evolution of REE fractionation patterns. Plan to submit to: *Geochimica et Cosmochimica Acta*.

(2) White, C. D. and **Johannesson, K. H**., in prep. A new model for mixing of reactive trace elements in estuaries. Plan to submit to: *Water Resources Research*.

(3) Johannesson, K. H., and Leybourne, M. I., in prep. Biogeochemistry of rare earth elements in low-temperature environments. Plan to submit to: *Earth Science Reviews*.

(4) Johannesson, K. H. and Leybourne, M. I., in prep. Proterozoic metabasalts of the Blackstone Group, Avalon Terrane, Rhode Island: Evidence for continental rifting. Plan to submit to: *American Journal of Science.*

(5) Dii Horne, J., Costa, L., White, C. D., and **Johannesson, K. H**., in prep. Reactive transport model for the rare earth elements: Fate and transport of emerging contaminants in groundwater flow systems. Plan to submit to: *Chemical Geology*.

(6) Johannesson, K. H., and White, C. D., in prep. Rare earth elements in stromatolites – 2. Estimating the CO_2 content of the ancient Earth atmosphere from REE fractionation patterns preserved in chemical sediments. Plan to submit to: *Geology*.

(7) Johannesson, K. H., White, C. D., Datta, S., Mohajerin, T. J., and White, C. D., in prep. Evaluating the source of organic matter driving microbial mediated arsenic mobilization in the Bengal Basin using reactive transport models. Plan to submit to: *Earth and Planetary Science Letters*.

(8) Johannesson, K. H. and Burdige, D. J., in prep. Anthropogenic gadolinium anomalies as tracers for wastewater discharge to estuaries. Plan to submit to: *Water Research*.

(9) Johannesson, K. H., Tang, J., and Burdige, D. J., in prep. Biogeochemical behavior of rare earth elements along a groundwater flow path: The Upper Floridan aquifer, west-central Florida, USA. Plan to submit to: *Chemical Geology*.

Meeting Symposia

(1) Johannesson, K. H., Maest, A. S., and Lyons, W. B., 1992. Oxyanion concentration mechanisms in eastern Sierra Nevada surface waters. In: *The History of Water: Eastern Sierra Nevada, Owens Valley, White-Inyo Mountains*, University of California, White Mountain Research Station Symposium, Vol. 4., pp. 348-366.

(2) Johannesson, K. H., Hodge, V. F., Stetzenbach, K. J., 1995. Rhenium concentrations in groundwater: Evidence for conservative behavior. *10th International Conference on Heavy Metals in the Environment*, Hamburg, Germany, pp. 370-373.

(3) Johannesson, K. H., Zhou, X., and Guo, C., 1997. The origin of middle rare-earth element enrichments in acidic natural waters. In: *Seventh Annual V. M. Goldschmidt Conference*, pp. 107-108, Lunar and Planetary Institute Contributions No. 921, Lunar and Planetary Institute, Houston.

(4) Farnham, I. M., **Johannesson, K. H**., Singh, A. K., Stetzenbach, K. J., and Zhou, X., 1999. Using multivariate statistical analysis of ground-water major cations and trace element concentrations to evaluate ground-water flow in south-central Nevada. In: J. L. Slate (ed.), *Proceedings of the Conference on Status of Geological Research and Mapping, Death Valley National Park,* U. S. Geological Survey Open-File Report 99-153, 64-65.

(5) Zhou, X., **Johannesson, K. H**., Stetzenbach, K. J., Guo, C., and Farnham, I. M., 1999. Rare earth elements in ground water and aquifer materials from southern Nevada and eastern California. In: J. L. Slate (ed.), *Proceedings of the Conference on Status of Geological Research and Mapping, Death Valley National Park,* U. S. Geological Survey Open-File Report 99-153, 66-67.

(6) Zhou, X., **Johannesson, K. H**., Stetzenbach, K. J., Guo, C., and Farnham, I. M., 1999. Comparative studies of the rare earth elements in groundwaters and aquifer materials from the southern Great Basin. In: *Ninth Annual V. M. Goldschmidt Conference*, pp. 340-341, LPI Contribution No. 971, Lunar and Planetary Institute, Houston.

(7) Zhou, X., **Johannesson, K. H.**, Stetzenbach, K. J., Farnham, I. M., Rose, T. P., Benedict, C. F., and Singh, A. K., 2000. Trace elements and their origins of fracture coating minerals from Pahute Mesa, Nevada Test Site, USA. In: Y. Wang (ed.), *Proceedings of the International Symposium on Hydrogeology and the Environment*, China Environmental Science Press, pp. 288-293.

(8) Datta, S., **Johannesson, K**., Mladenov, N., Sankar, M. S., Ford, S., Vegas, M., Neal, A., Kibria, M. G., Krehel, A., and Hettiarachchi, G., 2014. Groundwater-sediment sorption mechanisms and role of organic matter in controlling arsenic release into aquifer sediments of Murshidabad area (Bengal basin), India. In: M. I. Letter, H. B. Nicolli, J. M. Meichtry, N. Quici, J. Bundschuh, P. Bhattachary, and R. Naidu (eds.) *One Century of Discovery of Arsenicosis in Latin America (1914-2014), Arsenic in the Environment*, Proceedings of As 2014, CRC Press (Boca Raton, FL), pp. 95-97.

INVITED AND PLENARY TALKS

(1) Johannesson, K. H., Chevis, D. A., Palmore, C., Telfeyan, K., Burdige, D., Cable, J., Hemming, S., Rasbury, T., Moran, S. B., Prouty, N. G., and Swarzenski, P., 2014. Submarine groundwater discharge is an important source of REEs to the coastal ocean. *Eos Trans., American Geophysical Union* (Fall Meeting) Abstract H23D-0909. Invited

(2) Johannesson, K. H., Mohajerin, T. J., Helz, G., and Datta, S., 2014. Tungsten in groundwaters, surface waters, and associated sediments: Closing some of the knowledge gaps. *Eos Trans., American Geophysical Union* (Fall Meeting) Abstract H32B-07. Invited

(3) Johannesson, K. H., 2015. The biogeochemistry of rare earth elements in low-temperature, natural waters. *Goldschmidt Conference.* (2015 Patterson Medal Talk).

(4) Johannesson, K. H., Prouty, N. G., Chevis, D. A., Swarzenski, P. W., Telfeyan, K. C., White, C. D., and Burdige, D. J., 2017. From shield volcano to the sea: Rare earth element behavior in a coastal basalt aquifer. ASLO 2017 Aquatic Sciences Meeting, Paper 28741, Honolulu, Hawaii. Invited.

(5) Johannesson, K. H., Yang, N., and Datta, S. (2017) Biogeochemistry of arsenic in groundwater flow systems: The case of southern Louisiana. *Eos Trans. American Geophysical Union* (Fall

Meeting), Abstract H13J-1530. Invited.

(6) Johannesson, K. H., Cui, M., and Helz, G. R. (2018) Tungsten in sulfidic waters: Implications for paleoceanography and the origins of life. *Goldschmidt Conference*, Boston, MA. Invited Keynote Speaker.

(7) Johannesson, K. H. and Datta, S. (2018) Chemical speciation controls arsenic and tungsten in water resources. *Geological Society of America Abstracts with Programs* (November 2018) Invited.

(8) Johannesson, K. H., White, C. D., and Adebayo, S. B. (2020) Reaction path and reactive transport modeling of rare earth elements: Insights into the evolution of fractionation patterns. *Goldschmidt Conference*, Honolulu, HI. Invited

(9) Johannesson, K. H., 2023. Biogeochemistry of the rare earth elements in the critical zone. Invited Plenary speaker at the joint Italian Society of Mineralogy (SIMP), Italian Society of Geology (SGI), Italian Society of Geochemistry (SoGeI), and Italian Association of Volcanology (AIV) Conference. Potenza, Italy, 19-21 September 2023.

(10) Johannesson, K. H., 2024. Biogeochemistry of rare earth elements in deep, confined groundwater aquifer. American Chemical Society, spring meeting. New Orleans, LA, abstract # 3992461. Invited.

Recent Invited University Seminar Talks

2012	Ball State University
2013	Rice University
2014	Louisiana State University
2014	Memorial University of Newfoundland, St. Johns, Newfoundland
2016	University of South Carolina
2016	Université Pierre et Marie Curie (i.e., Paris 6)
2016	Heriot Watt University, Edinburgh, U.K.
2016	McMaster University, Hamilton, Ontario
2017	University of Toronto, Distinguished Lecture Series, Centre of Global Change Science
2017	Indiana University
2017	University of North Carolina, Chapel Hill
2017	Duke University
2018	Queen's University, Kingston, Ontario
2020	Various talks cancelled owing to Covid 19 (e.g., Oklahoma State University)
2021	New Hampshire Geological Society
2022	Northeastern University, Boston
2023	US EPA, Pensacola, Florida
2024	Georgia Institute of Technology
2025	Purdue University

ACTIVITIES/MEMBERSHIPS

Professional

Memberships

The Geochemical Society
European Association of Geochemistry

The International Association of Geochemistry and Cosmochemistry
American Geophysical Union
Geological Society of America
American Chemical Society
The American Society of Limnology and Oceanography
Association for Women Geoscientists
The American Association for the Advancement of Science
International Association of Hydrogeologists

Session Convener

2025 Science committee, Goldschmidt 2025 conference.

2024 Co-convenor (with R. L. Runkel, J. Blake, B. Colman, and S. R. Warix) Sources, fate, and transport of metals, metalloids, and rare earth elements in surface waters (H14G). American Geophysical Union, Annual Meeting, Washington, DC.

2022 Co-chair of Theme 13: Environmental Geochemistry: Contaminants, Geo-engineering, and Human Health. Goldschmidt Conference, Honolulu, Hawaii

2017 Co-convenor (with J. Schijf). REE marine grochemistry in the 21st Century: A tribute to the pioneering research of Henry Elderfield (1943-2016). Session 29. ASLO 2017 Aquatic Sciences Meeting, Honolulu, Hawaii.

2014 Co-convener (with S. Datta) and session co-chair, Geology of Metals and Human Health Impacts. Geological Society of America, Annual Meeting, Vancouver, British Columbia, Canada.

2014 Co-convener (with P. Bhattacharya, A. Mukherjee, and S. Datta) and session co-chair, Groundwater and Surface-Water Arsenic: From Source to Sink I & II. Geological Society of America, Annual Meeting, Vancouver, British Columbia, Canada.

2012 Co-convener (with S. Datta & R. Hon) and session chair, Biogeochemistry of Oxyanion-forming Trace Elements in the Environment. Goldschmidt Conference. Montreal, Canada.

2011 Co-convener (with S. Datta & A. Johnson) and session chair, Biogeochemistry of Arsenic and Antimony. Goldschmidt Conference. Prague, Czech Republic.

2010 Co-convener (with J. Schijf), Metal Sorption on Organic and Inorganic Surfaces: From Laboratory to Model to Field. American Geophysical Union, Fall Meeting, San Francisco, California.

2008 Co-convener (with S. Datta), Biogeochemistry of Oxyanion-forming Metals and Metalloids in the Environment. American Geophysical Union, Fall Meeting, San Francisco, California.

2007 Co-convener (with J. Schijf), Trace Metal Interactions with Submerged Aquatic Vegetation (SAV) and Bacterial Biofilms: The Current State of Experiment, Theory,

and Modeling. American Geophysical Union, Fall Meeting, San Francisco, California.

2002 Co-convener (with A. S. Reeve) and Session Chair, Hydrogeology II: Chemical Hydrogeology. Geological Society of America, Annual Meeting, Denver, Colorado.

2001 Co-convener (with A. E. Fryar) and Session Chair, Novel Approaches to Tracing Groundwater Flow Systems and Aquifer Processes: Applications of Isotopic and Trace Element Data. Geological Society of America, Annual Meeting, Boston, Massachusetts.

2000 Convener and Session Chair, Rare Earth Elements in Groundwater Flow Systems, Geological Society of America, Annual Meeting, Reno, Nevada

1996 Co-convener (with S. Ingebritsen), Groundwater Field and Analytical Methods I. American Geophysical Union, Fall Meeting, San Francisco, California

1996 Co-convener, Aqueous Geochemistry III: Geochemistry of Surface and Groundwaters, Geological Society of America, Annual Meeting, Denver, Colorado

Professional Committees

Geochemical Society, Goldschmidt Award Committee 2019-2022, Committee Chair 2021-2022
Advisory Board for European Training Network on Rare Earth Elements Environmental Transfer: From Rock to Human (PANORAMA) program
Geological Society of America, O. E. Meinzer Award 2014-2016
Geological Society of America, Diversity Committee

Reviewing Activities

National Science Foundation

Earth Sciences Instrumentation and Facilities Panel (2010-2013)
Earth Sciences (Hydrologic Sciences, Instrumentation and Facilities, Earthscope Sciences, Geobiology and Low Temperature Geochemistry)
Ocean Sciences (Chemical Oceanography)
Continental Dynamics (Continental Scientific Drilling and Exploration Program)

Department of Energy

Environmental Remediation Sciences Program (Panel Member, 2008)

Petroleum Research Fund

Journals

Science
Geology
Geochimica et Cosmochimica Acta
Chemical Geology
Earth and Planetary Science Letters
Limnology and Oceanography
Water Resources Research
Marine Chemistry
Aquatic Geochemistry
Applied Geochemistry

Geochemistry, Geophysics, Geosystems
Journal of the Geological Society, London
Separation Science and Technology
Journal of Hydrology
Journal of Contaminant Hydrology
Ground Water
Hydrogeology Journal
Environmental Geology
Environmental Science and Technology
Geochemistry: Exploration, Environment, Analysis
Bulletin de la Société Géologique de France
International Journal of Earth Sciences
American Association of Petroleum Geologists (AAPG) Bulletin
Journal of Geoscience Educations
Geosphere
Australian Journal of Marine and Freshwater Research

Co-Editor-in-Chief

Chemical Geology

Associate Editor

Geochimica et Cosmochimica Acta
American Mineralogist

United States Geological Survey

Professional Papers Series
National Institutes for Water Resources, Competitive Grants Program

Special Publications

Society of Economic Paleontologists and Mineralogists (SEPM) Special Publications
Marine Authigenesis: From Global to Microbial
Geological Society of America Books
American Chemical Society Symposium Series

University/College/Departmental Committees

University of Massachusetts

2025	Ad Hoc Committee Chair for Promotion of Dr. Elizabeth Sweet
2024-2025	Search Committee Chair, Hydrology Assistant Professor
2024	Ad Hoc Committee Chair for Tenure of Dr. Carol Thornber
2022-2025	Faculty Senate, School for the Environment
2020-2022	University Laboratory Safety Committee
2020-2021	School for the Environment Personnel Committee
2021	Ad Hoc Committee Chair for Promotion of Dr. Helen Poynton
2021-2022	Search Committee Chair, Coastal Geology Assistant Professor

Tulane University

2019-2020	University Senate
2016-2019	School of Science and Engineering, Promotion and Tenure Committee
2015-2018	Newcomb-Tulane College Honor Board

2013-2016 School of Science and Engineering, Nominating Committee
2010-2013 School of Science and Engineering, Promotion and Tenure Committee
2010-2012 University Faculty Senate
2007-2010 Graduate Studies Committee, School of Science and Engineering
2007-2008 Coordinated Instrument Facility Committee, School of Science and Engineering
2007-2008 Chair of Graduate Committee and Graduate Advisor, Department of Earth and Environmental Sciences

The University of Texas at Arlington

2003-2006 Undergraduate Assembly
2006 Faculty Search Committee, Environmental Health and Toxicology, Graduate Program in Environmental and Earth Sciences
2006 Faculty Search Committee, Department of Earth and Environmental Sciences, (Replacement for retiring faculty)
2004-2006 College of Sciences Research Enhancement Committee
2003 Chair, Search Committee, UTA Geology Faculty Search

Old Dominion University

2000-2001 Chair, Department Web Page Committee
2000 New Undergraduate Major and Curricula Committee
2000-2001 Department Library Committee, Old Dominion University
1999-2001 Faculty Editor of Departmental Newsletter, *Wavelengths*
2001-2002 Faculty Advisor for the Department of Ocean, Earth, and Atmospheric Sciences Graduate Student Organization

Graduate Advising

Current Students

Anant Misra (Ph.D.) Environmental Sciences, University of Massachusetts
Nepali Jayasinghe (Ph.D.) Environmental Sciences, University of Massachusetts
Madison Surette (Ph.D.) Marine Sciences, University of Massachusetts
Christopher Carter (M.S.) Environmental Sciences, University of Massachusetts
Aaron Shavitz (M.S.) Environmental Sciences, University of Massachusetts

Previous

Jaxon Dii Horne (Ph.D. Environmental Sciences, 2023) "Wicked surface complexation modeling (SCMs) of the rare earth elements (REYs) in the equatorial Pacific basin using kinetic batch adsorption experiments." University of Massachusetts Boston

Omolola Akintomide (Ph.D. Earth and Environmental Sciences, 2021) "Mobilization and sequestration of potentially toxic trace elements across changing redox conditions". Tulane University

Segun Adebayo (Ph.D. Earth and Environmental Sciences, 2019) "Rare earth elements cycling across salinity and redox gradients." Tulane University.

Minming Cui (Ph.D. Earth and Environmental Sciences, 2018) "The speciation, kinetics, and adsorption of tungsten in sulfidic natural waters: From paleo-environment to nanotechnology". Tulane University.

Katherine Telfeyan (Ph.D. Earth and Environmental Sciences, 2016) "Analysis of trace element cycling in marsh pore waters of the lower Mississippi Delta with

a case study of vanadium in groundwaters of Texas and Nevada". Tulane University.

Ningfang Yang (Ph.D. Earth and Environmental Sciences, 2015) "Groundwater arsenic contamination in shallow aquifers of the Mississippi Delta in southern Louisiana". Tulane University.

Tahmineh Jade Mohajerin (Ph.D. Earth and Environmental Sciences, 2014) "Tungsten speciation, mobilization, and sequestration: Thiotungstate stability constants and examination of (thio)tungstate geochemistry in estuarine waters and sediments". Tulane University.

Darren Chevis (Ph.D. Earth and Environmental Sciences, 2014) "Estimating the flux of rare earth elements and neodymium isotopes to the coastal ocean via submarine groundwater discharge." Tulane University.

Stephanie Willis (Ph.D. Earth and Environmental Sciences, 2010) "Trace Element Geochemistry in Groundwater Flow Systems." The University of Texas at Arlington.

Shama Hague (Ph.D., Environmental Science and Engineering, 2007) "Hydrogeochemical Evolution of Arsenic along Groundwater Flow Paths: Linking Aqueous and Solid Phase Arsenic Speciation" The University of Texas at Arlington

Jianwu Tang (Ph.D., Oceanography, 2005) "Geochemical Behavior of the Rare Earth Elements in Natural Terrestrial Waters." Old Dominion University.

Catherine Aliperta. (B.S. + M.S., Environmental Sciences, 2023) University of Massachusetts Boston.

Travis Hong (M.S., Earth and Environmental Sciences, 2017). Non-thesis master's degree. Tulane University

Dianne Palmore (M.S., Earth and Environmental Sciences, 2015). Non-thesis master's degree. Tulane University

Christy Pearcy (M.S., Earth and Environmental Sciences, 2009) "Evidence of Microbially Mediated Arsenic Mobilization from Sediments of the Aquia Aquifer, Maryland", Tulane University.

Heerel Dave (M.S., Earth and Environmental Sciences, 2008) "Geochemical Investigation of Tungsten in Two Groundwater Flow Systems: The Carrizo Sand Aquifer, Texas, USA, and the Aquia Aquifer, Maryland, USA" The University of Texas at Arlington.

Rituparna Basu (M.S., Earth and Environmental Sciences, 2006), "Selenium Speciation Along a Groundwater Flow Path in the Carrizo Aquifer, Southeastern Texas, USA." The University of Texas at Arlington

Makenzie Vessely (M.S., Environmental Science and Engineering, 2004) "Chromium along groundwater flowpaths: The Carrizo Sand and Upper Floridan aquifers, Texas and Florida, USA." The University of Texas at Arlington

William Bounds (M.S., Geology, 2001) "The Distribution of Airborne Coal Dust in Soil Profiles of Norfolk, VA and its Implication for Arsenic Loading to these Soils." Old Dominion University

Shannon Meseck (Ph.D. Oceanography) Old Dominion University (Candidacy Exam Committee Member)

Mary A. Yelken (M.S. 1996) "Trace Element Analysis of Selected Springs in the Virgin River Basin." University of Nevada, Las Vegas. Thesis committee member.

James F. Fitzgerald (M.S. 1996) "Residence Time of Groundwater Issuing from the South Rim Aquifer in the Eastern Grand Canyon." University of Nevada, Las

Vegas. Thesis committee member.

Sara M. Cox (M.S. 1996) "Relationships Between the Groundwaters of Ash Meadows, Death Valley, Pahranagat Valley and the Nevada Test Site Based on Statistical Analysis and Modelling of Trace Element Data." University of Nevada, Las Vegas. Thesis committee member.

Outside Research Committee Member

Deyvison Medrado Gonçalves (Ph.D., Agronomy, 2018) "Metals and rare earth elements in eastern Amazonia soils." Universidade Federal Rural Amazônia.

Alison O'Connor (Ph.D., Marine Sciences, 2016) Virginia Institute of Marine Sciences, College of William and Mary.

Yasmine Kouhail (Ph.D., Earth and Environmental Sciences, 2016). Influence de la competition des anions (hydroxydes, carbonates) sur la complexation des lanthanides trivalent par la matière organique naturelle: cas des substances humique." Université Paris Diderot (Sorbonne Paris Cité 7).

Li Sun (Ph.D., Geosciences, 2015), "Elemental and isotopic study of Lake Texoma, Texas-Oklahoma: Solute sources, mixing dynamics and metal cycling." The University of Texas at Dallas.

Johanna Blake (Ph.D., Earth and Environmental Science, 2015), "Geologic, tectonic, and geochemical signatures leading to arsenic in groundwater in the Gettysburg Basin". Lehigh University.

Rémi Marsac (Ph.D., Geosciences, 2011) "Contrôle de la speciation des terres rares par les acides humique: role de l'hétérogénéité des sies de complexation et de la competition entre cations." Université de Rennes 1.

Thorsten N. Reszat (Ph.D., Geological Sciences, 2007) "Dissolved Organic Carbon in Aquitard Environments: Properties, Complexation, and Transport." University of Saskatchewan.

James Blankenship (M.S.) Environmental and Earth Sciences, The University of Texas at Arlington

Arghya Goswami (M.S.) Environmental and Earth Sciences, The University of Texas at Arlington

Li Sun (Ph.D.) Geosciences, The University of Texas at Dallas

Teaching

2021	ENVSCI 341/641 The Geochemistry of a Habitable Planet
2021	ENVSCI 467, ENVSTY 401, UPCD 459 Senior Capstone
2020, 2022	ENVSCI 440/640 The Chemistry of Natural Waters
2013	EENS 4250/6250 Isotopes in the Environment
2010	EENS 6082 Geogenic Arsenic Pollution
2008-2016	EENS 4360/6360 Environmental Geochemistry
2007-2016	EENS 4300/6300 Groundwater Hydrology
2006	GEOL 4305/5365 Isotope Geochemistry
2003-2005	GEOL 1425 Introduction to Earth Systems
2002-2006	GEOL 4305/5305, EVSE 5311 Environmental Geochemistry
2003-2006	GEOL 4320/5365 Hydrogeology
1998-2001	GEOL 411/511 Structural Geology
1999-2000	GEOL 314 Petrology
2000	GEOL 695 Isotope Hydrogeology
2001	GEOL 420/520 Hydrogeology
2002	GEOL 635 Isotope Geochemistry

Main Fields of Teaching Interest and Competence

Low Temperature Aqueous Geochemistry
Biogeochemistry
Advanced Aqueous Geochemistry
Geochemistry
Geochemical Thermodynamics
Environmental Geochemistry
Isotope Hydrology
Isotope Geochemistry
Groundwater Hydrology
Introductory Hydrology/Hydrogeology
Introductory Geology
Introductory Oceanography
Petrology/Petrography
Metamorphic and Igneous Petrology

LIST OF RECENT SCIENTIFIC COLLABORATORS

Dr. B. Dugan, Colorado School of Mines, Golden, CO
Dr. M. Person, New Mexico Tech, Socorro, NM
Dr. R. S. Robinson, University of Rhode Island, Kingston, RI
Dr. M. A. Stewart, British Geology Survey, Edinburgh, UK
Dr. J. Everest, British Geology Survey, Edinburgh, UK
Dr. J. Schijf, University of Maryland, Solomons, MD
Dr. G. R. Helz, University of Maryland, College Park, MD
Dr. G. Filippelli, Indiana University, Indianapolis, IN
Dr. D. J. Burdige, Old Dominion University, Norfolk, VA
Dr. S. R. Hemming, Columbia University, New York, NY
Dr. E. T. Rasbury, Stony Brook University, Stony Brook, NY
Dr. D. Brabander, Wellesley College, Wellesley, MA
Dr. L. Boumaiza, University of Texas, Austin, TX
Dr. V. Hatje, Marine Environment Laboratories, IAEA, Monaco
Dr. C. Jeandel, CNRS, Université de Toulouse, France
Dr. B. A. Haley, Oregon State University, Corvallis, OR
Dr. L. P. Costa, Federal University of Rio Grande, Brazil
Dr. N. Mirlean, Federal University of Rio Grande, Brazil
Dr. G. Quintana, Federal University of Rio Grande, Brazil
Dr. J. B. Glass, Georgia Tech University, Atlanta, GA
Dr. C. Elliott, Georgia State University, Atlanta, GA
Dr. J. S. Hanor, Louisiana State University, Baton Rouge, LA
Dr. L. Winkel, ETH Zürich, Switzerland
Dr. L. Munk, University of Alaska, Fairbanks, AK
Dr. G. McPherson, Tulane University, New Orleans, LA
Dr. N. G. Prouty, USGA, Santa Cruz, CA
Dr. P. W. Swarzenski, USGS, Santa Cruz, CA
Dr. C. T. Hayes, University of Southern Mississippi
Dr. P. Santschi, TAMU, Galveston, TX
Dr. J. B. Martin, University of Florida, Gainesville, FL
Dr. E. E. Martin, University of Florida, Gainesville, FL

Dr. J. E. Cable, University of North Carolina, Chapel Hill, NC
Dr. M. I. Leybourne, Queen's University, Kingston, Ontario
Dr. G. M. Hettiarachchi, Kansas State University, Manhattan, KS
Dr. S. B. Moran, University of Alaska, Faribanks, AK
Dr. S. Datta, University of Texas, San Antonio, TX
Dr. B. E. Rosenheim, University of South Florida, St. Petersburg, FL
Dr. C. D. White, University of Massachusetts, Boston, MA
Dr. K. Neumann, Ball State University, Muncie, IN
Dr. P. Bhattacharya, KTH Royal Institute of Technology, Stockholm, Sweden
Dr. W. B. Lyons, Ohio State University, Columbus, OH
Dr. J. Bundschuh, University of Southern Queensland, Australia
Dr. A. Mukherjee, Indian Institute of Technology, Kharagpur, India
Dr. Z. Shen, Coastal Carolina University, Conway, SC

ANALYTICAL EXPERIENCE

Inductively Coupled Plasma Mass Spectrometry
Instrumental Neutron Activation Analysis
X-Ray Fluorescence
Ion Chromatography
Spectrophotometry
Adsorptive Cathodic Stripping Voltammetry