Bridget R. Scanlon

Professional Summary

April 20, 2024

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Professional Preparation

Academic Background

Ph.D. Geology, University of Kentucky, 1985

M.S. Geology, University of Alabama, 1983

B.A. Mod., Geology, Trinity College, Dublin, Ireland, 1980

Professional Appointments

Senior Research Scientist, Bureau of Economic Geology, The University of Texas at Austin (October 1999-Present)

Impacts of climate variability/change on precipitation (ENSO, PDO etc) and water resources. Assessment of paleoclimate impacts on groundwater recharge in semiarid and arid regions. Evaluation of land-use change impacts on groundwater resources. Quantification of groundwater recharge using soil physics, environmental tracers, and numerical simulations. Evaluation of arsenic contamination related to anthropogenic and geogenic sources. Unsaturated zone nitrate profiling to link land surface processes with groundwater contamination. Monitoring and modeling analyses of evapotranspiration covers for waste containment.

Research Scientist, Bureau of Economic Geology, The University of Texas at Austin (September 1991-October 1999)

Characterization of fluid flow and solute transport in arid and semiarid systems using soil physics and environmental tracers; this work was related to potential low-level radioactive waste disposal sites and to the Pantex Plant site in Texas; numerical simulation of liquid and vapor transport in unsaturated systems for low-level radioactive waste disposal

Research Associate, Bureau of Economic Geology, The University of Texas at Austin (July 1987-August 1991)

Characterization of hydraulic and chemical attributes of the unsaturated zone related to low-level radioactive waste disposal; use of radioisotopic tracers to estimate moisture flux in desert soils; numerical simulations of liquid flow related to the INTRAVAL (International Validation of Flow and Transport) program

Hydrogeologist, S. S. Papadopoulos and Associates (February 1986-February 1987)

Hydrologic characterization of Superfund site including monitoring well installation and ground-water sampling for organics; numerical modeling of ground-water flow and transport related to water resources evaluation

Research Assistant, Geology Department, Trinity College, Dublin, Ireland (September-December 1980)

Analysis of geologic data for paleoenvironmental reconstructions

Professional Registrations and Certificates

State of Mississippi Board of Professional Geoscientists, License No. 1723

State of Texas Board of Professional Geoscientists, License No. 1645

Theses

A hydrogeological study of the Maine River Basin, Republic of Ireland: Tuscaloosa, Alabama, University of Alabama, M.S. thesis, 95 p., 1983

Dissertations

Chemical, physical, and microbiological characteristics of groundwater in wells and springs of the Inner Bluegrass Karst Region of central Kentucky: Lexington, Kentucky, University of Kentucky, Ph.D. dissertation, 216 p., 1985

Areas of Expertise

Areas of Expertise

Application of numerical models for simulating variably saturated flow and transport

Assessment of linkages between water and energy extraction and electricity generation

Assessment of natural and anthropogenic contamination of aquifers, including arsenic and nitrate

Evaluation of global models and GRACE satellite data for water resources assessments

Evaluation of the impact of climate variability and land use change on groundwater recharge

Awards

Awards and Honorary Societies

Fisher Endowed Chair in Geological Sciences, 2016-2023

AGU William Bowie Lecture, 2022

American Geophysical Union Hydrology Days Award, 2019

Charles V. Theis Award for Groundwater, American Institute of Hydrology, 2019

O. E. Meinzer Award, Geological Society of America, 2019

AGU Hydrologic Sciences Award, 2018

International Association of Hydrogeologists Presidential Award, 2018

M. King Hubbard Award, 2016

National Academy of Engineering, 2016

American Geophysical Union Fellow, 2015

Publication Award, Bureau of Economic Geology (exemplary publication of scientific or economic impact), 2009

Joseph C. Walter Jr. Excellence Award, Jackson School of Geosciences, 2008

Geological Society of America Birdsall-Dreiss Distinguished Lecture Award, 2007-2008

Geological Society of America Fellow, 2005

Conservation Award, Barton Springs Edwards Aquifer Conservation District, 2000, 2004

George F. Pirtle Award, Department of Geology, University of Kentucky, 1984

Friends of International Students Award, University of Alabama, 1982-1983

Mining and Mineral Resources Research Fellowship, University of Alabama, 1982-1983

P.E. LaMoreaux and Associates Scholarship, University of Alabama, 1982

Service

University Committees

Technical Advisor, meetings of Directorate, Bureau of Economic Geology, The University of Texas at Austin, September 2014-August 2017

Member, Dean Mosher review committee, Jackson School of Geosciences, The University of Texas at Austin, February 9-June 12, 2015

Graduate Studies Committee Member, Jackson School of Geosciences, Energy and Earth Resources, Univ. of Texas at Austin, September 1, 2018-Present

External Committees Participation

Standing Review Board, Geoscience Expert, NASA, Satellite Mass Change Mission, US and Germany, April 13, 2023-December 31, 2028

Intl. Advisory Board Member, Mekong River Basin Commission, October 1, 2019-Present

Managing Editor, Remote Sensing in Earth Systems Science, 2018-Present

Editorial Board Member, Environmental Research Letters, 2017-Present

Co-Chair, Groundwater and Energy, International Association of Hydrogeologists (IAH), national IAH meetings, May 1, 2016-Present

Associate Editor, Environmental Research Letters, 2012 - present

Associate Editor, Water Resources Research, 2011 - present

Member, GRACE Science Team, NASA, 2009-Present

Member, Texas Groundwater Protection Committee, Texas Commission on Environmental Quality, 2002 - present

External Advisory Board Member, Climate and Water Resources Changes in Mainland Southeast Asia (2018-2022), Southern University of Science and Technology (SUSTech), Mekong River, Shenzhen, China, January 1, 2018-December 31, 2022

Distinguished Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China, June 12, 2019-June 12, 2022

Vice Chair/Chair, Section 11 Earth Resources Engineering, NAE, July 2020-June 2022

Member, European Training Network for In Situ Imaging of Dynamic Processes in Heterogeneous Subsurface Environments (ENIGMA), topic: subsurface imaging, European Union, January 1, 2017-December 31, 2020

Program Committee Chair, Committee on Membership, Chair, NAE, February 2019-January 2020

Vice Chair/Chair, Earth Resources Engineering Peer Committee, NAE, February 2018-January 2020

Member, Committee on Future Directions of the U.S. Geological Survey's Energy Resources Program, National Academies of Sciences, Engineering, and Medicine, Washington, DC; Denver, Colo.; California, August 1, 2017-August 31, 2018

Committee Member, Future Directions for the U.S. Geological Survey's Energy Resources Program, National Academy of Sciences, Engineering, and Medicin, USGS energy strategy, 2017-2018

Member, Unconventional Hydrocarbon Development: Options and Challenges for Beneficial Use of Flowback and Produced Waters: A Workshop, NASEM, April 2016-February 2017

Co-chair, Commission on Groundwater and Climate Change, International Association of Hydrogeologists, 2011-2017

Managing Editor, Vadose Zone Journal, Editorial Board, January 1, 2011-December 31, 2014

Member, Ph.D. Dissertation Committee, Civil, Archtectural, and Environmental Engineering, September, 2013

Member, Ecohydrology Committee, American Geophysical Union, 2011

Co-Chair, Agrosystems and Water Resources, American Geophysical Union Annual Meeting, San Francisco, 2010, 2010

Co-Chair, Impacts of Land Use and Climate Change on Water Resources Sustainability, Geological Society of America Annual Meeting, 2010, 2010

Member, Committee on Spatial Data Enabling USGS Strategic Science in the 21st Century, National Academy of Sciences, 2009 - 2010

Member, EPSCOR Review Team, University of New Mexico, 2009 - 2010

Member, Unsaturated Zone Hydrology Committee, American Geophysical Union, 1997-2010

Co-Chair, Ecohydrology within the Context of Global Change, American Geophysical Union Annual Meeting, San Francisco,, 2009

Co-Chair, Groundwater Sustainability and Global Change, American Geophysical Union Annual Meeting, San Francisco,, 2009

Member, Committee on Integrated Observations on Hydrologic and Related Sciences, National Academy of Sciences, 2005 - 2007

Symposium Developer and Co-Chair, Impacts of Land Use/Land Cover Change on the Water Cycle Committee, American Geophysical Union Fall Program, 2005 - 2007

Associate Editor, Vadose Zone Journal, , 2001 - 2007

Co-chair, Impacts of Land Use/Land Cover Change and Climate Variability on Water Resources, 2006 American Geophysical Union Annual Meeting, San Francisco, 2006

Chair, Fall Program Committee for Hydrology, American Geophysical Union, 2005

Symposium Developer and Co-Chair, Fall Meeting, Impacts of Land Use/Land Cover Change on the Water Cycle, American Geophysical Union, 2005

Co-Leader, Development of a Proposal for a CUAHSI Hydrologic Observatory in Texas, , 2004 - 2005

Member, Review Committee, Global Estimation of Groundwater Recharge for WHYMAP, IAEA, Vienna, 2004 - 2005

Member, Committee on Unsaturated Zone Hydrology, American Geophysical Union, 1997 - 2005

Member, Joint DOE/NSF Workshop: Water: Challenges at the Intersection of Human and Natural Systems, Pacific Northwest National Laboratory, 2004

Member, National Science Foundation, Ecohydrology Vision Workshop, Albuquerque, NM, 2004

Symposium Developer and Co-Chair, Sustainable Management of Water Resources, Geological

Society of America, 2004

Member, Science Planning Team for Consortium of Universities for Advancement of Hydrologic Sciences (CUAHSI), , 2003 - 2004

Member, Committee on Groundwater Research, Texas Natural Resource Conservation Commission, 2002 - 2004

Symposium Developer and Co-Chair, Assessing the Impacts of Vegetation on the Water Balance, American Geophysical Union, 2003

Member, Promotions Advisory Committee, Bureau of Economic Geology, 2002-2003

Associate Editor, Hydrogeology Journal, 2000 - 2003

Co-chair, Texas Groundwater Protection Committee, Research Subcommittee, Texas Commission on Environmental Quality, 2002

Member, Fluxes across Interfaces, National Academy of Sciences, 2002

Member, Long-Term Stewardship, Department of Energy, 2002

Member, Surface water groundwater interaction, LCRA/SAWS, 2002

Member, Unsaturated Zone Committee, American Geophysical Union, 2002

Workshop Facilitator, Groundwater Fluxes across Interfaces, Diffuse vs. Focused Fluxes Session, National Academy of Sciences, Wisconsin, 2002

Member, Faculty Hiring Committee, Department of Geological Sciences, The University of Texas at Austin, 2001 - 2002

Member, Surveillance and Monitoring Workgroup, Long-Term Stewardship Program, Department of Energy, 2001 - 2002

Member, Technical Advisory Group on Groundwater Modeling and Contaminant Transport, Pantex, U.S. Department of Energy, 2000 - 2002

Member, Technical Advisory Group for Water Availability Modeling, Texas Water Development Board, 2001

Referee, GroundWater, 1991 - 2001

Referee, Journal of Hydrology, 1991 - 2001

Referee, Soil Science Society of America Journal, 1991 - 2001

Referee, Water Resources Research, 1991 - 2001

Member, Committee to Develop DOE Complex-Wide Vadose Zone Science and Technology Roadmap, Department of Energy, 2000

Member, Technical Advisory Group for Water Availability Modeling for the Texas Water Development Board, , 2000

Member, Committee to Develop Global Water Cycle Plan, U.S. Global Change Research Program, 1999 - 2000

Associate Editor, American Geophysical Union, Reviews of Geophysics, 1997 - 2000

Session developer and co-chair, Measurement Techniques and Modeling of Spatial and Temporal Variability in Groundwater: Recharge in Response to Past, Present, and Future Climates, Geological Society of America, 1999

Technical Reviewer, Evaluation of Recharge Issues at the Hanford Site, Department of Energy, 1999

Member, National Academy of Sciences Committee Subsurface Contamination at DOE

Complex Sites: Research Needs and Opportunities, National Academy of Sciences, 1998 - 1999

Member, Committee for Hydrogeology and Environmental Geology, SEPM (Society for Sedimentary Geologists), 1996 - 1999

Session developer and co-chair, Monitoring and Modeling of the Performance of Engineered Covers for Waste Isolation, Annual Meeting, San Francisco, American Geophysical Union, 1998

Symposium Developer and Co-Chair, Recent Advances in Tracers in Vadose Zone Hydrology, Nice, France, European Geophysical Union, 1998

Technical Reviewer, Analysis of 36Cl Results from the High-Level Nuclear Waste Site at Yucca Mountain, Department of Energy, 1997 - 1998

Associate Editor, Groundwater, Association of Ground Water Scientists and Engineers, 1995 - 1998

Session Developer and Co-Chair, Use of Noninvasive Techniques for Evaluating Parameters in Unsaturated Systems, San Francisco, American Geophysical Union, 1997

Symposium developer and Co-Chair, The Role of Preferential Flow in the Unsaturated Zone, Denver, Geological Society of America, 1996

Symposium developer and co-chair, Unsaturated Zone Hydrology, Geological Society of America, 1996

Technical Reviewer, Analysis of Preferential Flow at Yucca Mountain, Nuclear Waste Technical Review Board, 1995

Technical Reviewer, Evaluation of Recharge Issues at the Hanford Site, Department of Energy, 1995

Member, Evaluation of Unsaturated Flow at the proposed low-level radioactive waste disposal site at Ward Valley, California, National Academy of Sciences, 1994 - 1995

Theme session developer and co-chair, Integration of Hydraulic and Geochemical Approaches in Vadose Zone Studies, Geological Society of America, 1994

Chairperson, Methods Applied to Evaluation of Recharge Rates at Low-Level and High-Level Radioactive Waste Disposal Facilities at Workshop on Chloride and 36Cl Studies in the Arid Southwest, Las Vegas, , 1993

Session Co-Chair, Quantitative Hydrogeology, Boston, Geological Society of America, 1993

Convenor, review committee, and field-trip leader, Evaluate the unsaturated zone hydrology research at the Bureau and specifically the work related to low-level radioactive waste disposal at Eagle Flat, Texas, , 1992

Member, INTRAVAL (International Validation of Flow and Transport Modeling), Program Committee, , 1990

Member, Short Course Committee, Geological Society of America, 1990

Session developer and co-chair, Hydrogeology of Arid Regions, Geological Society of America, 1990

Outreach Activities

Big, Bad Texas Storms and More: Let's Talk about Water, podcast: presented at American Geophysical Union Fall Meeting 2019, San Francisco, Calif., December 11, 2019.

EarthView Texas: using GIS to see local geology and hydrology: presented to Rio Hondo and Los Fresnos Independent School Districts, Brownsville, Texas, February 2000.

3-D Visualization of geology and use of GIS to examine geology: presented to Math and Science Tek Teams , Austin, Texas, 2000.

Water Resources Podcast: presented at https://wrp.beg.utexas.edu/, February 2023-Present.

Teaching and Advising

University Courses Taught

Climate change and land use change impacts on groundwater resources in semiarid regions: presented at Bureau of Economic Geology seminar, Austin, Texas, November 2009.

Unsaturated zone hydrology, 3-hr-credit course, GEO 27225 and 27490: presented at Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, Fall 2009.

Unsaturated Zone Hydrology: 3-hr-credit course, GEO 27225 and 27490: presented at Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, Fall 2008.

Ground water pollution and contaminant transport: 3-hour-credit graduate course presented at the Department of Civil Engineering, The University of Texas at Austin, Austin, Texas, February March, 2005.

Vadose zone hydrology (cotaught with Dr. McCray): 3-hour-credit course, GEO 391, presented at The University of Texas at Austin, Austin, Texas, February 2004.

Modeling Barton Springs aquifer: presented to Barton Springs Edwards Aquifer Authority, Austin, Texas, October 2003.

Environmental isotope geochemistry (Co-taught with Dr. Banner): 3-hour-credit course, GEO 388H, presented at Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, February 2003, 2005.

Unsaturated zone hydrology: presented to Department of Geological Sciences field class, The University of Texas at Austin, Austin, Texas, May 2002.

Ground water pollution and contaminant transport: 3-hour-credit graduate course presented at the Department of Civil Engineering, The University of Texas at Austin, Austin, Texas, February 1998.

Unsaturated zone hydrology, organic contaminant transport, and groundwater modeling: presented to University College, Department of Civil Engineering, Cork, Ireland, February 1997.

Physical and environmental tracer data to quantify spatial and temporal variability in unsaturated flow: presented at the Summer School on European Water Resources and Climate Change Processes, University College, 1997.

Basic principles of unsaturated flow and solute transport: presented at the Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, 1992.

Basic principles of unsaturated flow and solute transport: presented to The University of Texas at Austin, Department of Geological Sciences, 1992.

Basic principles of unsaturated flow and solute transport: presented at the Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, 1991.

Geology 382, Analysis of unsaturated flow related to radioactive waste disposal: presented at The University of Texas at Austin, Department of Geological Sciences, 1990.

Continuing Education Courses Taught

TOPCORP Water Issues Related to Shale Oil and Gas Extraction: presented to TOPCORP industry and regulators, presented at Penn State University, State College, Pa., August 29-31, 2016.

TOPCORP Water and Energy Extraction in the U.S. / Water and Electricity Generation in the U.S.: presented to TOPCORP regulators, Bakersfield, Calif., April 11-13, 2016.

TOPCORP: Water Issues Related to Energy Extraction in Shale Plays in the U.S.: presented to

GE Oil and Gas University, Florence, Italy, February 15-18, 2016.

Groundwater Arsenic Contamination in Texas: short course presented to TCEQ, Austin, Texas, Summer 2011.

Estimating rates of groundwater recharge (co-taught with Rick Healy, USGS: presented at the GSA Annual Meeting, Houston, Texas, October 2008.

Elements of Groundwater Hydrology: short course presented to TCEQ with J. P. Nicot, Austin, Texas, Spring 2008.

Fate and Transport in the Subsurface: short course presented to TCEQ with J. P. Nicot, Austin, Texas, Spring 2008.

Groundwater Arsenic Contamination in Texas: short course presented to TCEQ with J. P. Nicot, Austin, Texas, Spring 2008.

Groundwater Geochemistry: short course presented to TCEQ with J. P. Nicot, Austin, Texas, Spring 2008.

Groundwater arsenic contamination (co-taught with Dr. Nicot): 1-day short course presented to Texas Commission on Environmental Quality (TCEQ), Austin, Texas, February 2006, 2007.

Fate and transport (with J. P. Nicot): presented to Texas Commission on Environmental Quality (TCEQ), Austin, Texas, February 2005.

Evaluation of groundwater arsenic contamination in Texas: 4-hour short course presented to TCEQ, Austin, Texas, 2005.

Groundwater-surface water interactions focusing on water quantity and water quality issues: 1-day short course presented to TCEQ, Austin, Texas, 2005.

Fate and transport (with J. P. Nicot): presented to Texas Commission on Environmental Quality (TCEQ), Austin, Texas, February 2004.

Fate and transport (with J. P. Nicot): presented to Texas Commission on Environmental Quality (TCEQ), Austin, Texas, February 2004.

Estimating rates of groundwater recharge: cotaught with Rick Healey at Geological Society of America meeting, Denver, Colorado, 2004.

Assessment of groundwater surface water interactions: presented to EPA Region 6, Dallas, Texas, October 2003.

Groundwater surface water interactions: presented to Texas Commission on Environmental Quality, Austin, Texas, August 2003.

Fate and transport (with J. P. Nicot): presented to Texas Commission on Environmental Quality (TCEQ), Austin, Texas, February 2003.

Interactions of groundwater and surface water: presented at Regional EPA Meeting at TCEQ, Austin, Texas, 2003.

Unsaturated zone hydrology: presented to Texas Natural Resources Conservation Commission, Austin, Texas, April 2002.

Techniques for quantifying groundwater recharge: Short Course: Geological Society of America Annual Meeting, Boston, Massachusetts, November 2001.

Unsaturated zone hydrology: Short Course: Texas Natural Resources Conservation Commission, Austin, Texas, August 2001.

Techniques for estimating groundwater recharge: Short Course: Texas Water Development Board, Austin, Texas, June 2001.

Geology 391, Unsaturated zone hydrology: presented to The University of Texas at Austin,

Department of Geological Sciences, October 1996.

Geology 391, Unsaturated zone hydrology: presented to The University of Texas at Austin, Department of Geological Sciences, February 1995.

Geology 391, Unsaturated zone hydrology: presented to The University of Texas at Austin, Department of Geological Sciences, February 1994.

Unsaturated-flow studies related to low-level radioactive waste disposal: sponsored by the American Nuclear Society and presented to the University of Nevada, 1989.

Student Committee Supervision

M.S., Supervisor, Meiyan Chen, Optimal Electrification Planning in Sub-Saharan African Countries, Jackson School of Geosciences, Energy and Earth Resources, Austin, Tex., 2021

Supervisor, M.S., Supervisor, Laura Sigelmann, Climate Change and Migration in Cambodia: An Analysis of Spatiotemporal Trends in Water Availability and Migration, Jackson School of Geosciences, Energy and Earth Resources, Austin, Tex., 2020

Supervisor, M.S., Supervisor, Audrey Pfeil, Energy and Water Production Trends in the Powder River Basin, Jackson School of Geosciences, Energy and Earth Resources, Austin, Tex., 2018

Committee Member, Ph.D., Committee Member, Beth-Ann Gross, Water Balance Evaluations for Monitored Evapotranspirative Cover Systems at Three Sites in the Semi-Arid and Arid Southwest U.S., Dept. of Civil, Architectural and Environmental Engineering, Univ. of Texas at Austin, Austin, Tex., 2005

Supervisor, M.S. Thesis Committee, Kelley Keese, Assessing controls on diffuse groundwater recharge using unsaturated flow modeling: The University of Texas at Austin, Department of Geological Sciences, 2005

Supervisor, Ph.D. Dissertation Committee, Brad Cey, The University of Texas at Austin, Department of Geological Sciences, in progress, 2005

Co-Supervisor, M.S. Thesis Committee, Jun Liao, Analysis of water potential data and their implications for unsaturated flow processes in an arid setting: The University of Texas at Austin, Austin, Texas, Department of Civil and Environmental Engineering, 1994

Student Committee Participation

Committee Member, Ph.D., Committee Member, Wen-Ying Wu, Advancing the Application of Remote Sensing to Improve Land Surface Modeling, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2021

Committee Member, Ph.D., Committee Member, Lingcheng Li, Multi-Scale Understanding and Modelling of Plant Hydraulics, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2020

Committee Member, Ph.D., Committee Member, Marya Halubok, Understanding and Modeling the Relationship between Solar-Induced Chlorophyll Fluorescence, Carbon, Water, and Vegetation, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2018

Ph.D. Committee, Lingcheng Li, Jackson School of Geosciences, The University of Texas at Austin, Austin, Texas, 2016

Ph.D. Committee, Marya Halubok, Jackson School of Geosciences, The University of Texas at Austin, Austin, Texas, 2016

Ph.D. Committee, Seungwon Chung, Jackson School of Geosciences, The University of Texas at Austin, Austin, Texas, 2016

Committee Member, Ph.D., Committee Member, Naresh Neupane, Understanding Precipitation Changes over West Africa and North America under Global Warming and Identifying a Congo

Basin Walker Circulation, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2015

Committee Member, Ph.D., Committee Member, Xitian Cai, Hydrological assessment and terrestrial nitrogen model development of the Noah-MP land surface model, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2015

Committee Member, Ph.D., Committee Member, Wendy Marie Robertson, Anthropogenic impacts on recharge processes and water quality in basin aquifers of the desert Southwest: A coupled field observation and modeling study, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2013

Member, Ph.D. Dissertation Committee, Ibrahim Maimouna, CNRS, IRD, Hydrosciences, Montpelier, 2010

Member, Ph.D. Dissertation Committee, Wendy Robertson, The University of Texas at Austin, 2010

Committee Member, Ph.D., Committee Member, Hua Su, Large-scale snowpack estimation using ensemble data assimilation methodologies, satellite observations and synthetic datasets, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, Tex., 2009

Member, Ph.D. Dissertation Committee, Guoliang Cao, University of Alabama, 2008

Member, Ph.D. Dissertation Committee, Jeffrey Kuhn, The University of Texas at Austin, in progress, 2007

Member, Ph.D. Dissertation Committee, John McCartney, Geotechnical analysis of performance of different types of engineered barrier: The University of Texas at Austin, Department of Geotechnical Engineering, 2007

Member, Ph.D. Dissertation Committee, Seay Nance, The University of Texas at Austin, in progress, 2007

Member, Ph.D. Dissertation Committee, Beth Gross, Geotechnical analysis of performance of different types of engineered barriers: The University of Texas at Austin, Austin, Texas, Department of Geotechnical Engineering, 2006

Member, Ph.D. Dissertation Committee, Hua Su, The University of Texas at Austin, Completed, 2006

Member, M.S. Thesis Committee, Daniel Bailey, The University of Texas at Austin, Department of Geological Sciences, in progress, 2005

Member, M.S. Thesis Committee, Kelli Warren, Hydrogeology of the Barta Brothers' Ranch: University of Nebraska, 2005

Member, MSc Thesis Committee, Johnathan Bumgardner, Estimating biozone hydraulic conductivity in wastewater soil absorption systems using inverse numerical modeling: The University of Texas at Austin, Department of Geological Sciences, 2005

Member, Ph.D. Dissertation Committee, Crystal Gene-Hua, Massachusetts Institute of Technology, in progress, 2005

Member, Ph.D. Dissertation Committee, Crystal Ng, Massachusetts Institute of Technology, Cambridge, 2005

Member, Ph.D. Dissertation Committee, Jon Goodall, A spatial temporal data model for the land surface and atmosphere: The University of Texas at Austin, Department of Civil Engineering, 2005

Member, Ph.D. Dissertation Committee, Patrick J. Mickler, Elemental and isotopic study of speleothems in Barbados: The University of Texas at Austin, Austin, Texas, 2005

Committee Member, M.S., Committee Member, Amy A. McCole, Seasonal Water Usage by Juniperus ashei: Assessment with Stable Isotopes of Hydrogen and Oxygen, Jackson School of Geosciences, Dept. of Geological Sciences, Austin, 2004

Member, M.S. Thesis Committee, Amy McCole, Seasonal water usage by Juniperus ashei: assessment with stable isotopes of hydrogen and oxygen: The University of Texas at Austin, Austin, Texas, 2004

Member, Ph.D. Dissertation Committee, Ian Jones, Review of geochemical evolution of groundwater in the Pleistocene Limestone aquifer of Barbados: The University of Texas at Austin, Austin, Texas, 2002

Member, Ph.D. Dissertation Committee, Chal Creese, An uncertainty analysis for a performance assessment of a low-level radioactive waste disposal facility: The University of Texas at Austin, Austin, Texas, Department of Geotechnical Engineering, 1999

Member, Ph.D. Dissertation Committee, Chia-Nan Liu, Stability reliability of geosynthetic landfill cover systems: The University of Texas at Austin, Austin, Texas, Department of Geotechnical Engineering, 1998

Member, Ph.D. Dissertation Committee, Sung-Chi Hsu, Stability and failure mechanisms of slopes in weak rock masses: The University of Texas at Austin, Austin, Texas, Department of Geotechnical Engineering, 1998

Committee Member, M.S., Committee Member, Monica Bartlemann, Spatial and temporal variability in soil moisture on a hill slope: Rattlesnake Hill, Austin, Jackson School of Geosciences, Dept. of Geological Sciences, 1997

Member, M.S. Thesis Committee, Monika Bartelmann, Spatial and temporal variability in soil moisture in a hill slope: Rattlesnake Hill, Texas: The University of Texas at Austin, Austin, Texas, 1997

Member, Ph.D. Dissertation Committee, Junnrien Lai, Mechanical behavior of Eagle Ford Shale: The University of Texas at Austin, Austin, Texas, Department of Geotechnical Engineering, 1997

Member, M.S. Thesis Committee, James Rudnicki, Hill-slope scale soil moisture variability: Rattlesnake Hill, Texas: The University of Texas at Austin, Austin, Texas, Department of Geological Sciences, 1996

Presentations

Invited Presentations

Assessing Global Water Scarcity using GRACE Satellites: presented to Tsinghua University, Online webinar, March 21, 2023.

Assessing the Impacts of Agrohydrology on Water Resources in the High Plains Aquifer: presented to AGU, Chicago, Il., December 13, 2022.

Embrace GRACE: How Satellite Gravimetry Transformed Hydrologic Science: presented to AGU, presented at AGU Fall Meeting, Bowie Lecture, Chicago, Il., December 13, 2022.

Plugging Orphaned Wells in Texas to Reduce Adverse Environmental Impacts: presented to AGU, Chicago, Il., December 12, 2022.

Relative Importance of Climate and Humans on Water Storage Changes using GRACE Satellite Data: presented to New Zealand Hydrological Society, presented at Our water: a taonga in an ever-changing world, Dunedin, New Zealand, December 6, 2022.

GRACE Satellite Contributions to Understanding Global Water Resources: presented to Hong Kong Polytechnic University Workshop Keynote Presentation, Zoom, December 5, 2022.

Past and Projected Produced Water Volumes in the Permian Basin and Related Management

Options: presented to Water Management Permian Basin Congress, Houston, Tex., November 27, 2022.

Monitoring Variations in Global Water Resources Related to Climate Extremes and Human Water Use using GRACE Satellites: presented to International Association of Hydrogeologists, Perth, Australia, November 21, 2022.

Water Issues related to Oil and Gas Production in the Permian Basin: presented to ExxonMobil Master Class, Houston, Tex., November 8, 2022.

Long-Term Solutions to Improve U.S. Drinking Water Services: Introduction: presented to NASEM: Water Science and Technology Board, Washington, D.C., November 1, 2022.

Analysis of Coal Ash Resources from Power Plants in the Gulf Coast Region for Potential Rare Earth Element Resources: presented to Geological Society of America, Denver, Colo., October 18, 2022.

Use of GRACE Satellites to Assess Impacts of Agriculture on Water Storage: presented to ICBA at UAE, presented at Online Webinar Webinar Valuing Water in Agriculture in Marginal Environments, August 30, 2022.

Increasing Resilience to Climate Extremes with Emphasis on Major Urban Areas: presented to University of Illinois, DREMES: Dynamic Research Enterprise for Multidisciplinary Engineering Sciences, Circle Distinguished Lecture Series, presented at Online webinar, August 22, 2022.

GRACE Data and Groundwater Stocks: presented to Nature Water Talk, presented at Online webinar, August 18, 2022.

Assessing Opportunities for Improving Community Water Systems through Increased Infrastructure Funding in Texas: presented to Austin GeoDayz AIPG, Austin, Tex., August 4, 2022.

Where do we use water in the petroleum industry?: presented to Petroleum and Geosystems Engineering, Summer Program, July 19, 2022.

Past and Projected Produced Water Volumes in the Permian Basin and Related Management Options: presented to TCEQ Trade Fair, Austin, Tex., June 11, 2022.

Assessing Global Water Scarcity using Satellites: presented to Water, Climate, and the Environment, presented at Jackson School of Geosciences, Online, January 21, 2022.

Impacts of Climate on Water Storage Changes in U.S. Aquifers using GRACE Satellite Data: presented to Intl. Symposium "Towards Urban Sustainability", presented at Univ. of Tennessee, Food, Energy, water Systems US, FEWSUS, Virtual presentation, November 15, 2021.

Assessing Suitability of Groundwater Development Using GRACE Satellite Data: presented to Geological Society of America, presented at Annual Meeting, Virtual presentation, October 10, 2021.

Relative Importance of Climate and Humans on Water Storage Changes using GRACE Satellite data: presented to Keynote Lecture to German Geological Society, presented at German Geological Society Annual Meeting, Virtual presentation, September 23, 2021.

How Safe is Our Drinking Water in the United States?: presented to Univ. of Alabama, presented at Dept. Seminar Series, Tuscaloosa, Ala., September 17, 2021.

Global Water Scarcity: presented to Univ. of Alabama, presented at Mills Endowed Lecture, Tuscaloosa, Ala., August 16-September 16, 2021.

Produced Water Update: presented to Texas Desalination Association, presented at Virtual Presentation, September 15, 2021.

Comparison of GRACE Satellite Data with Monitoring and Modeling Data: presented to Univ. of California Los Angeles, presented at Virtual presentation, May 26, 2021.

Assessing Water Availability for Development in Africa using GRACE Satellites: presented to EGU, presented at Virtual presentation, April 22, 2021.

Global to Regional Hydrologic Applications of GRACE Gravimetry: presented to Spaceborne Earth Observations & Global Change Online Forum in China, presented at Virtual presentation, April 15, 2021.

Use of GRACE Satellite Data to Move Towards Sustainable Water Resources Management Globally: presented to The Nature Conservancy, presented at Virtual presentation, April 12, 2021.

Management of Produced Water in the Permian Basin: presented to Texas Commission on Environmental Quality, presented at Virtual presentation, Austin, Tex., February 23, 2021.

Mining Water Use: presented to Texas Alliance of Groundwater Districts, presented at TAGD Meeting, Austin, Tex., January 26, 2021.

Increasing Access to Water and Energy in Africa: presented to Olli Lecture Series at University of Texas at Austin, presented at Virtual presentation, Austin, Tex., January 22, 2021.

Assessing Impacts of Water Management Related to Oil and Gas Development on Water Resources: presented to Austin Geological Society, presented at Virtual presentation, Austin, Tex., January 12, 2021.

Produced Water as Water Supply: presented to Texas Alliance of Groundwater Districts, presented at 2020 Virtual Texas Groundwater Summit, September 1, 2020.

Cumulative Water Risks Related to Oil Production in the Permian Basin: presented to Society of Petroleum Engineers, webinar, June 6, 2020.

Moving Towards More Sustainable Water Management from Local to Global Scales: presented to Shell, Houston, Tex., March 10, 2020.

Water Managements Strategies Both within and outside the Oil Sector Based on Data from All Major Plays within the U.S.: presented to American Petroleum Institute, webinar, February 25, 2020.

Geologically Speaking: Higher Education's Advances in Water and Energy: presented at Permian Basin Water in Energy Conference, Midland, Tex., February 19, 2020.

Comparison of Groundwater Storage Changes from GRACE Satellites with Monitoring and Modeling of Major U.S. Aquifers: presented at 2020 Underground Injection Control Conference, San Antonio, Tex., February 17, 2020.

Role of Modeling and Satellites in Global Water Resource Assessments: presented to Yale School of Forestry and Environemental Studies, webinar, February 12, 2020.

Comparison of Groundwater Storage Changes from GRACE Satellites with Monitoring and Modeling of Major U.S. Aquifers: presented to Texas Water Development Board, Austin, Tex., January 28, 2020.

Full Life Cycle Water Evaluation and Management: presented to Shell, Houston, Tex., January 26, 2020.

Comparison of GRACE-Derived Groundwater Storage with Ground-Based Monitoring and Regional and Global Modeling in Major U.S. Aquifers: presented to Tsinghua University, presented at Tsinghua University, Beijing, China, January 5, 2020.

Managing Produced Water in Texas: presented to Railroad Commission of Texas, Austin, Tex., December 17, 2019.

Emerging Trends: Water Use and Management Related to Energy: presented to TopCorps, The University of Texas at Austin, December 3, 2019.

Assessing the Reliability of GRACE-Derived Groundwater Storage using Ground-Based Monitoring and Regional and Global Modeling in Major U.S. Aquifers: presented to Pacific Northwest National Lab, Richland, Wash., November 25, 2019.

Portfolio of Options for Water Management in the Permian Basin: presented at Bureau of Economic Geology Tight Oil Resource Assessment Consortium Annual Meeting, Austin, Tex., November 21, 2019.

Can We Optimize Water Management in the Permian Basin to Minimize Adverse Environmental Impacts?: presented to University of Texas Permian Basin, Midland, Tex., October 25, 2019.

Assessing Water Resources at Global to Local Scales: presented to Global Institute for Water Security, presented at 2019 Distinguished Lecture Series, University of Saskatchewan, Saskatoon, Canada, October 9, 2019.

Managing Water Issues Related to Unconventional Oil and Gas Production in the U.S.: presented to International Association of Hydrogeologists, Brisbane, Qld., Australia, July 17, 2019.

Water Issues Related to Unconventional Energy Production in the U.S.: presented to Intl. Assoc. of Hydrogeologists, presented at Brisbane, Australia, July 17, 2019.

Assessing Water Resources from Global to Local Scales using GRACE Satellites, Models, and Monitoring: presented to Engineers Australia in association with Deakin University, Melbourne, Vic., Australia, July 16, 2019.

Approaches to Managing Water Issues Related to Unconventional Oil and Gas Production in the United States: presented to Engineers Australia, presented at Water Wallys, Melbourne, Australia, July 15, 2019.

Assessing Water Resources from Global to Local Scales Using GRACE Satellites, Models, and Monitoring: presented to Engineers Australia, presented at Water Wallys, Melbourne, Australia, July 15, 2019.

What Can We Learn from Increased Induced Seismicity Related to Oil and Gas Production in the U.S.?: presented to RIPED, Beijing, June 14, 2019.

Combining the Satellite Gravimetry, Land Surface Models, and In-Situ Data to Evaluate Groundwater Storage Changes in Major Aquifers in the United States: presented to Department of Hydraulic Engineering, presented at Tsinghua Univ., Beijing, June 13, 2019.

Water Issues Related to Unconventional Oil and Gas Development: presented to National Academy of Sciences, Engineering, and Medicine, presented at Workshop on Environmental Legacies and Water Considerations Related to Oil and Gas Production, Midland, Tex., May 13, 2019.

Water Issues Related to Unconventional Oil and Gas Development: presented to The National Academies of Sciences, Engineering, and Medicine Roundtable on Unconventional Hydrocarbon Development, Midland, Tex., May 13, 2019.

Water Balance in the Permian Basin: presented to Tight Oil Resource Assessment Consortium, presented at Annual Meeting, Bureau of Economic Geology, The University of Texas at Austin, May 9, 2019.

Managing Water Resources within the Context of Climate Extremes: presented to International Association of Hydrogeologists, Dublin, Ireland, March 30, 2019.

Global to Local Water Resource Assessments: Implications for Management: presented to American Geophysical Union, presented at Colorado Hydrology Days, Fort Collins, Colo., March 28, 2019.

Impacts of Climate Variability and Human Intervention on Water Storage Changes based on GRACE Satellites in Major U.S. Aquifers: presented at Impact of Groundwater in Earth System

Models Conference, Taipei, Taiwan, March 17, 2019.

Integrating Remote Sensing, Global and Regional Models, and Monitoring Data to Assess Water Storage Changes in Major Aquifers in the United States: presented to IGEM, presented at 2nd Intl. Workshop on Impact of Groundwater in Earth System Models, Taiwan, March 17, 2019.

Climate and Human Drivers of Water Storage from Satellites and Models in the U.S.: presented to Chinese Academy of Sciences, Institute of Geodesy and Geophysics, Wuhan, China, March 14, 2019.

Keynote Presentation: Water Issues in U.S. Oil and Gas Development: presented at Permian Basin Water in Energy Conference, Midland, Texas, February 20, 2019.

Water Issues Related to Unconventional Oil and Gas Development in the U.S.: presented at Permian Basin Water in Energy Conference, Midland, Tex., February 20, 2019.

Developing aquatic ecosystem science to inform environmental performance: presented to Water-Energy Regulatory Environment and Trends Session, presented at The University of Texas at Austin/Exxon Mobil 2018 Energy-Water Workshop, Austin, Tex., December 3, 2018.

Keynote Presentation: Will Water Issues Constrain Energy Production in the Permian Basin?: presented at Hart Energy Conference, Midland, Tex., November 6, 2018.

Comparison of Trends in Water Storage from Global Models and GRACE Satellite Data: presented at IAG Workshop on HydroGeodesy and 3rd Satellite Gravity and Hydrology Forum, Wuhan, China, June 28, 2018.

Applications of Remote Sensing and Models for Global Water Resource Assessments: presented to European Training Network for In Situ Imaging of Dynamic Processes in Heterogeneous Subsurface Environments, ENIGMA, Cargese Summer School, Corsica, June 21, 2018.

Global Water Resource Assessments: Comparison of Models to GRACE Satellite Data: presented to Chinese Academy of Sciences, Beijing, June 15, 2018.

Management of Produced Water Related to U.S. Oil and Gas Production: presented at International Workshop on Environmental Management in Unconventional Oil and Gas Development, Beijing, China, June 13-14, 2018.

Comparison of Global Models and GRACE Satellites for Monitoring Water Storage Trends: presented to Exxon-Mobil, presented at The University of Texas at Austin, May 15, 2018.

Global Water Resources Assessments: Models vs Satellites: presented at Daniel L. and Irma Evans Lecture, University of Washington, Seattle (https://www.ce.washington.edu/news/lecture/evans), May 3, 2018.

Global Models Underestimate Large Decadal Declining and Rising Water Storage Trends Relative to GRACE Satellite Data: presented to National Academy of Engineering, Houston, Tex., April 4, 2018.

Water Issues within Unconventional Resource Development in the Permian Basin: presented to Houston Geological Society, presented at Applied Geoscience Conference on Integrated Approaches to Unconventional Reservoir Assessment and Optimization, Houston, Tex., March 6, 2018.

How Do Global Assessments of Water Storage Trends from Models Compare with Those from GRACE Satellite Data?: presented to University of Illinois at Urbana-Champaign, March 2, 2018.

Comparison of Global Models and GRACE Satellite Water Storage Trends: presented to American Association for Advancement of Science (AAAS) Annual Meeting, Austin, Tex., February 16, 2018.

Global Hydrologic Models Underestimate Extremes in GRACE Satellite Derived Water Storage

Trends: presented to Southern University of Science and Technology, SUSTech, Shenzheng, China, January 15, 2018.

Assessing Induced Seismicity Related to Produced Water Management with Increasing U.S. Tight Oil Production: presented to Research Institute of Petroleum Exploration and Development (RIPED), Beijing, China, January 8, 2018.

Assessing Potential for Reuse of Produced Water from Energy Extraction: presented to Research Institute of Petroleum Exploration and Development (RIPED), Beijing, January 8, 2018.

Managing Water Risks with Increasing Unconventional Oil Production in the U.S.: presented at Berg Hughes Research Symposium, Texas A&M University, College Station, Tex., November 1, 2017.

Water Issues Related to Unconventional Oil Production in the U.S.: presented to Pioneer Natural Resources, Irving, Tex., October 10, 2017.

Water Budget of the Permian Basin: Implications for Groundwater Quality: presented to Texas Groundwater Protection Committee, presented at Texas Commission on Environmental Quality (TCEQ), Austin, Tex., September 12, 2017.

Managing Water Risks Related to Oil and Gas Production in the Permian Basin: presented to The University of Texas at El Paso, September 11, 2017.

Produced Water Management Challenges with Recent U.S. Oil Revolution: presented to Permian Basin Petroleum Association, Midland, Tex., July 19, 2017.

Global Models Underestimate Extremes in Water Storage Trends Relative to GRACE Satellite Data: presented at Third International Conference on Remote Sensing Applicaitons, Tsinghua University, Beijing, China, June 28, 2017.

Produced Water Management Challenges with Recent U.S. Oil Revolution: presented to Peking University, Beijing, China, June 23, 2017.

Managing Water Risks Related to Increasing Unconventional Oil and Gas Production in the U.S.: presented to American Association of Petroleum Engineers, presented at AAPG Annual Meeting, Houston, Tex., April 5, 2017.

Changing Water Budget Related to Transitioning from Conventional to Unconventional Oil Production in the Permian Basin: presented to Society of Petroleum Engineers, Houston, Tex., March 29, 2017.

Global Models Underestimate Extremes in Water Storage Trends Relative to GRACE Satellite Data: presented at SUSTech University, Shenzhen, China, January 15, 2017.

Comparison of Total Water Storage Anomalies from Global Hydrologic and Land Surface Models and New GRACE Satellite Solutions: presented to Chinese Academy of Sciences, presented at Wuhan, China, January 10, 2017.

Comparison of New Grace Satellite Data for Hydrologic Applications: presented to Intl. Perspectives on Water Resources and the Environment Conference, Wuhan, China, January 6, 2017.

Water Resources Management in the U.S. Southwestern Regions: presented to Intl. Perspectives on Water Resources and the Environment Conference, Wuhan, China, January 5, 2017.

Water and Environmental Issues Associated with Unconventional Energy Development: presented to Council for Scientific Society Presidents, presented at Energy in the Next Era: Unconventional Hydrocarbon Development, Washington, D.C., December 5, 2016.

Water Management Strategies in the U.S. and Potential Applications in India: presented to

Assessments of Regional Hydrology Using Space-Borne Gravity Obserrvations, presented at Indo-US bilateral workshop, National Geophysical Research Institute, Hyderabad, India, November 14, 2016.

Water Used for and Produced with Oil in the Permian Basin: presented to Energy Water Initiative, presented at BP, Houston, Tex., November 9, 2016.

The Water Budget of the Permian Basin: presented to Digital H2O, presented at The New Realities of Shale Water Management: A Look Forward to 2017 and Beyond, Chicago, November 3, 2016.

Water Issues in the Bakken Shale Play: presented to Statoil, Austin, Tex., October 13, 2016.

Towards More Sustainable Management of Groundwater Resources: presented to National Academy of Engineering, Washington, D.C., October 11, 2016.

Monitoring Subsurface Water Resources in the Western U.S.: presented to Quenching a Thirsty West: Integrated Scientific Knowledge and Technological Infrastructure to Solve Water Issues in the Western United States, presented at University of Nevada-Reno and NSF Joint Workshop, Lake Tahoe, Nev., August 27, 2016.

Conjunctive Use and Managed Aquifer Recharge in Southwest U.S.: presented to Texas Alliance of Groundwater Districts, Groundwater/Surface Water Interaction, presented at Texas Groundwater Summit, San Marcos, Tex., August 23, 2016.

Hydrologic Implications of GRACE Satellite Data in the Colorado River Basin: presented to Tsinghua University, Beijing, June 29, 2016.

Global Evaluation of GRACE Data for Hydrologic Applications: presented at First Workshop on Satellite Gravity and Hydrology, Beijing, June 26, 2016.

Management of Flowback and Produced Waters: presented to National Academy of Sciences, Washington, D.C., May 20, 2016.

Water Used for and Produced with Oil in the Permian Basin: presented to Permian Basin Environmental Regulatory Seminar, presented at Permian Basin Petroleum Association, Midland College, Midland, Tex., May 12, 2016.

Food, Energy, and Water Nexus in Texas: presented to Iowa State University, Dept. of Geological and Atmospheric Sciences, Ames, Iowa, April 22, 2016.

The Future of Water: Assessing Sustainability from Space: presented at Ronald Lecture, Iowa State University, Ames, Iowa, April 22, 2016.

Groundwater Usage for Energy Extraction and Electricity Generation: presented to National Groundwater Association, Washington, D.C., February 18, 2016.

Water Initiatives in Texas: Energy, Technology, and Policy: presented to UT Energy Week, The University of Texas at Austin, Austin, Tex., February 9, 2016.

Will water scarcity in semiarid regions limit hydraulic fracturing of shale plays?: presented at Colorado School of Mines, Boulder, Colorado, February 11, 2015.

Comparison of varying agricultural intensification on water resources: comparison of the North China Plain and US High Plains: presented to Geological Society of America, presented at Annual Meeting, Vancouver, British Columbia, November 2014.

Water Issues Related to Oil and Gas Production in the Permian Basin: presented to ExxonMobil Master Class, presented at ExxonMobil Hdq., Houston, November 8, 2022-Present.

Past and Projected Produced Water Volumes in the Permian Basin and Related Management Options: presented to N American Onshore Oil and Gas Industry, presented at Water Management Permian Basin Congress, Houston, Texas, September 27, 2022-Present.

Where do we use water in the petroleum industry?: presented to Texas Teachers, presented at Water in the Petroleum Industry, Dr.Hilary Olson, PGE, Univ. TX at Austin, July 19, 2022-Present.

Past and Projected Produced Water Volumes in the Permian Basin and Related Management Options: presented to Texas Commission on Environmental Quality, presented at TCEQ Trade Fair, Austin, TX, May 11, 2022-Present.

Presentations

Novel Five-Day GRACE/GRACE-FO Satellite Solutions for Improved Flood Detection and Predictability, AGU23: presented to AGU, presented at AGU Annual Meeting, San Francisco, Calif., December 11-15, 2023.

Characterization of Coal Resources in the U.S. Gulf Coast and Rare Earth Element Potential: presented to Geological Society of America, Denver, Colo., October 18, 2022.

Assessing Linkages between Drinking Water Quality Violations and Social Vulnerability in the United States: presented to Bureau of Economic Geology, Austin, Tex., January 7, 2022.

Dependency of GRACE Total Water Storage Flood Detectability on Antecedent Soil Moisture Conditions: presented at AGU Fall Meeting, New Orleans, La., December 9-13, 2021.

Inferencing the GRACE/GRACE-Follow On Data Gap Using Bayesian Modeling: presented at AGU Fall Meeting, New Orleans, La., December 9-13, 2021.

How Severe is Water Stress in the Middle East and North Africa Region?: presented to European Geosciences Union, virtual, April 19-31, 2021.

Combining Physics-Based Modeling and Machine Learning for GRACE Satellite Data Fusion and Reconstruction: presented at American Geophysical Union meeting, December 1-17, 2020.

Global Analysis of Daily and Monthly GRACE Data for Flood Prediction: presented at American Geophysical Union meeting, online, December 1-17, 2020.

Opportunities to Invest in Groundwater-Fed Irrigation Sub-Saharan Africa--A Regional Assessment Under Alternative Energy Solutions: presented at American Geophysical Union meeting, virtual, December 1-17, 2020.

Preliminary Results from GRACE/GRACE-FO 5-Day Mascon Solutions from CSR: presented at American Geophysical Union meeting, virtual, December 1-17, 2020.

Reconstruction of GRACE Total Water Storage Through Automated Machine Learning (AutoML).: presented at American Geophysical Union meeting, virtual, December 1-17, 2020.

Relative Impacts of Climate Extremes and Irrigation Water Use on Water Storage in Major Aquifers Based on GRACE Satellite Data: presented at American Geophysical Union meeting, virtual, December 1-17, 2020.

Assessing Impacts of Climate Extremes and Human Water Use on GRACE Total Water Storage Trends in Major US Aquifers.: presented at GRACE/GRACE-FO Science Team Meeting, virtual, October 26-29, 2020.

Reconstruction of GRACE Total Water Storage Through Automated Machine Learning: presented at GRACE/GRACE-FO Science Team Meeting, October 26-29, 2020.

Assessing Detectability of Global Flood Occurrences using Daily and Monthly GRACE/GRACE-FO: presented at GRACE/GRACE-FO Science Team Meeting 2020, virtual, October 2020.

Assessing the Reliability of GRACE-Derived Groundwater Storage Using Ground-Based Monitoring and Regional and Global Modeling in Major U.S. Aquifers: presented at American Geophysical Union meeting, San Francisco, Calif., December 9-13, 2019.

Multi-Decadal Assessment of Water Storage Changes in the Tigris-Euphrates Basin Using Remote Sensing, Hydrological Models, and Monitoring Data: presented to American Geophysical Union (AGU), presented at AGU conference, San Francisco, Calif., December 9-13, 2019.

How Reliable is GRACE-Derived Groundwater Storage Changes?: presented to GRACE science team, presented at GRACE/GRACE-FO Science Team Meeting 2019, Pasadena, Calif., October 8-10, 2019.

Research Activities in Texas: Cal/Val for SMAP and Sensor Evaluations: presented to W-3188, presented at Multi-State Soil Physics Group, Riverside, Calif., January 10-11, 2019.

Update on Powell Research Group Study Integrating GRACE Satellite Data, Regional Groundwater Models, and In-Situ Data to Assess Water Storage Changes in Major Aquifers in the US, AGUFM H51M-1477: presented at American Geophysical Union meeting, Washington, D.C., December 10-14, 2018.

Will Water Issues Constrain Energy Production in the U.S.?: presented to Sinopec, presented at Petroleum Engineering, The University of Texas at Austin, November 28, 2018.

Declining Water Storage in the Middle East as Observed by GRACE, Altimetry, Hydrological Models, and In-Situ Data: presented at Geological Society of America meeting, Indianapolis, Ind., November 4-7, 2018.

Challenges in Texas Water Management for All Sectors: presented to UT OLLI SAGE, presented at The University of Texas at Austin, November 5, 2018.

Will Water Issues Constrain Energy Production in the U.S.?: presented to Tight Oil Resource Assessment (TORA) consortium Annual Meeting, Bureau of Economic Geology, The University of Texas at Austin, October 29, 2018.

Groundwater Studies in the High Plains Aquifer: presented to Texas legislative group, presented at Bureau of Economic Geology, The University of Texas at Austin, May 24, 2018.

Assessing Relative Importance of Climate Variability and Human Intervention in Global Water Resources: presented at The Robert Dickinson Symposium on Earth System Modeling: Past, Present and Future, The University of Texas at Austin, May 14, 2018.

Comparison of Fluid Budgets in U.S. Shale Oil Plays Related to Seismicity: presented to Pioneer Natural Resources Management, Bureau of Economic Geology, The University of Texas at Austin, March 19, 2018.

Water Budgets of U.S. Tight Oil Plays: Implications for Induced Seismicity: presented at SEG/SPE Workshop: Injection Induced Seismicity, Dallas, Tex., November 5, 2017.

ManagingTradeoffs in Water and Energy Space: presented to Sener Group, Energy Secretariat, Mexico, Mexico City, August 23, 2017.

Produced Water Management Challenges with Recent U.S. Oil Revolution: presented to Peking University, Beijing, June 25, 2017.

Global Models Underestimate Extremes in Water Storage Trends Relative to GRACE Satellite Data: presented to 3rd Intl. Conf. on Applications of GRACE Satellite Data, presented at Tsinghua Univ., Beijing, June 24, 2017.

Comparison of Total Water Storage Anomalies from Global Hydrologic and Land Surface Models and New GRACE Satellite Solutions: presented to Bureau of Economic Geology, Austin, Tex., January 20, 2017.

Water and Energy Issues: presented to ExxonMobil, presented at Bureau of Economic Geology, Austin, Tex., May 3, 2016.

Water and Electricity Generation, Including Sources of Water for Energy Production (webinar):

presented to CUAHSI, Austin, Tex., April 2016.

Water in the Oil and Gas Cycle, Including Hydraulic Fracturing (webinar): presented to CUAHSI, Austin, Tex., March 25, 2016.

Use of GRACE Satellites to Assess Trends in Groundwater Storage Globally: presented to LBJ School of Public Affairs, The University of Texas at Austin, February 23, 2016.

Water-Energy-Land Nexus in Texas: presented to National Center for Science Education (NCSE) Food-Energy-Water Nexus Conference, Washington, D.C., January 18, 2016.

Hydrologic Implications of GRACE Satellite Data in the Colorado River Basin: presented to Bureau of Economic Geology, The University of Texas at Austin, Austin, Tex., January 7, 2016.

Will water scarcity in semiarid regions limit hydraulic fracturing of shale plays?: presented at National Groundwater Association Summit, San Antonio, Texas, March 17, 2015.

Global analysis of the role of the GRACE satellites in water resource assessments: presented to Geological Society of America, presented at annual meeting, Vancouver, British Columbia, Canada, November 2014.

Comparison of varying agricultural intensification on water resources: comparison of the North China Plain and U.S. High Plains: presented to Geological Society of America, presented at Annual Meeting, Vancouver, British Columbia, October 2014.

Global analysis of the role of the GRACE satellites in water resource assessments: presented to Geological Society of America, presented at Annual Meeting, Vancouver, British Columbia, October 2014.

How does water use for hydraulic fracturing of unconventional shale oil compare with shale gas and with conventional oil production?: presented to Geological Society of America, presented at Annual Meeting, Vancouver, British Columbia, October 2014.

Advanced techniques for monitoring groundwater: presented at San Antonio Water Systems, San Antonio, Texas, Summer 2011.

Difficulties in assessing reliability of groundwater storage changes from GRACE satellite data:: presentation to GRACE Science Team Meeting at Center for Space Research, Austin, Texas, Spring 2011.

GRACE satellite shows increasing groundwater resources in West Africa: presented at Water for Food Conference, Lincoln, Nebraska, Spring 2011.

Impact of irrigated agroecosystems on groundwater resources in the U.S. High Plains and North China Plain: poster presented at GSA Annual Meeting, Denver, Colorado, October 31-November 3 2010.

Overexploitation of water resources for irrigated agriculture: case studies in the U.S. High Plains and California Central Valley: presented at GSA Annual Meeting, Denver, Colorado, October 31-November 3 2010.

Water scarcity within the context of climate change and land use change and linkages to food production in semiarid regions: invited talk presented at GSA Annual Meeting, Denver, Colorado, October 31-November 3 2010.

Novel satellite and ground-based techniques for watershed planning: presented at World Bank Lectures, Washington, D.C., February 2010.

Approaches toward sustainable groundwater resources in the U.S. High Plains and North China Plain: presented at Luangcheng Agricultural Station, Luangcheng, China, 2010.

Comparison of irrigated agriculture in the U.S. High Plains and North China Plain: poster presented at Toward Sustainable Groundwater in Agriculture--An International Conference Linking Science and Policy, San Francisco, California, 2010.

Comparison of irrigated agriculture in the U.S. High Plains and North China Plain: presented at International Groundwater Forum 2010, Securing Groundwater in a Changing World, Beijing, China, 2010.

Evaluation of ecohydrology of semiarid environments: presented at Texas State University, San Marcos, Texas, 2010.

Impacts of agriculture on water resources: presented to USDA, Blackland Research Center, Temple, Texas, 2010.

Impacts of irrigation on water resources in the U.S. High Plains and North China Plain: presented at Tsinghua University, Beijing, China, 2010.

Probabilistic predictions of groundwater recharge under climate change scenarios in a dryland cotton region of the Southern High Plains: poster presented at Toward Sustainable Groundwater in Agriculture--An International Conference Linking Science and Policy, San Francisco, California, 2010.

Satellite and ground-based approaches for monitoring impacts of agriculture on groundwater resources: keynote address presented at Toward Sustainable Groundwater in Agriculture--An International Conference Linking Science and Policy, San Francisco, California, 2010.

Use of GRACE satellite and subsurface tracers to assess groundwater resources in semiarid regions: presented at Columbia University, New York, New York, 2010.

Use of GRACE satellite data for water resources management: Summer Course presented at Integrated River Basin Management, Beijing, China, 2010.

Use of GRACE satellite data to monitor global groundwater resources: presented to UNESCO, Amsterdam, The Netherlands, 2010.

Climate change adaptation for semiarid regions using groundwater: presented at World Bank Lectures, Washington, D.C., September 2009.

Comparison of land use change impacts on water resources in the southwest U.S. (Texas High Plains) and the Sahel region (southwest Niger): presented at 2IE University, Ouagadougou, Burkina Faso, W. Africa, 2009.

How long will the Ogallala aquifer last?: presented to Texas Exes, The University of Texas at Austin, Austin, Texas, 2009.

Impacts of changing land use on subsurface water resources in the semiarid Southern High Plains, Texas, USA: presented at the Department of Geography and Geology, University of Copenhagen, Copenhagen, Denmark, 2009.

Impacts of cultivation on groundwater resource in semiarid regions: comparison of the southwest U.S. (Texas High Plains) and the Sahel region (southwest Niger): presented at Université Cheikh Anta Diop, Dakar, Sénégal, 2009.

Land use change impacts on water resources in the southwest U.S. relative to southwest Niger: presented at University Abdou Moumoun, Niamey, Niger, 2009.

Source and mobilization of perchlorate in groundwater in the Texas High Plains: presented to EPA, Dallas, Texas, 2009.

Integration of hydrogeology and soil science for sustainable water resources--focus on water quantity: presented at Geological Society of America Annual Meeting, Houston, Texas, October 2008.

Impacts of irrigation on water resources in the Texas High Plains: presented at the Texas Water Development Board, Austin, Texas, 2008.

Texas aquifers: presented to high school teachers, The University of Texas at Austin, Institute for Geophysics, Austin, Texas, 2008.

Perchlorate mobilization related to land use change in the Southern High Plains, USA: presented at American Geophysical Union Fall Meeting, Arlington, Virginia, December 2007.

Naturally occurring arsenic contamination in a semiarid oxidizing system, Southern High Plains aquifer, USA: presented at Geological Society of America Annual Meeting, Denver, Colorado, October 28-29, 2007.

Implications of climate variability for groundwater resources and waste disposal in semiarid regions--a look at ecological controls from annual to millennial timescales: Birdsall-Dreiss distinguished lecture presented at the Geological Society of America Annual Meeting, Denver, Colorado, October 2007.

Naturally occurring arsenic contamination in a semiarid oxidizing system, southern High Plains aquifer, USA: presented at Geological Society of America Annual Meeting, Denver, Colorado, October 2007.

Impacts of Changing Land Use on Subsurface Water Resources in Semiarid Regions
Implications of Climate Variability for Groundwater Resources and Waste Disposal in Semiarid Regions-A Look at Ecological Controls from Annual to Millennial Timescales: Birdsall Dreiss Lectures, presented at 30 universities, February 2007.

Impact of climate variability and land use/land cover change on groundwater recharge in the Southwest U.S.: presented to Lawrence Livermore National Laboratory, Livermore, California, June 2005.

Comparison of different approaches for relating ecology and hydrology in semiarid regions: presented at American Geophysical Union Joint Assembly, New Orleans, Louisiana, May 2005.

Overview of recharge studies in the Southwest U.S.: presented at International Atomic Energy Agency, Vienna, Austria, January 2005.

Ecological controls on the water cycle in water-limited ecosystems: presented at Annual Meeting for the Society of Range Management, Fort Worth, Texas, 2005.

Potential for collaboration between University of Texas and Comision Nacional del Agua: presented to Comision Nacional del Agua, Mexico City, Mexico, 2005.

Estimating groundwater recharge in porous media aquifers in Texas: presented at Texas Groundwater 2004: Towards Sustainability: Texas State Capitol Extension, San Marcos, Texas, November 2004.

Estimating groundwater recharge in porous media aquifers in Texas: presented at Texas Groundwater 2004: Towards Sustainability: Texas State University Capitol Conference, San Marcos, Texas, November 2004.

Impact of land-use change on groundwater recharge in the southwestern United States: presented at Geological Society of America Meeting, Denver, Colorado, November 2004.

Measurement, monitoring, and modeling analyses of a proposed low-level nuclear waste facility in Texas: presented at Geological Society of America Meeting, Denver, Colorado, November 2004.

Potential advances in quantifying the water cycle in karst systems using hydrologic observatory approach: presented at Geological Society of America Meeting, Denver, Colorado, November 2004.

Ecological controls on water cycle response to climate change in semiarid regions: presented at University of Nebraska, Lincoln, Nebraska, 2004.

Ecological controls on water cycle response to climate variability in desert regions: invited lecture presented at Oregon State University, Corvallis, Oregon, 2004.

Ecological controls on water cycle response to climate variability in water limited ecosystems:

presented as U.T. Department of Geological Sciences Technical Talk, Austin, Texas, 2004.

Ecological controls on water cycle response to climate variability in water limited ecosystems: presented at Pacific Northwest National Laboratory, Richland, Washington, 2004.

Evaluating climate, vegetation, and soil controls on groundwater recharge using unsaturated flow modeling: presented with K. E. Keese and R. C. Reedy at TWDB Conference on Aquifers of West Texas, San Angelo, Texas, 2004.

Evaluating the performance of ET covers for waste containment in semiarid/arid regions (with R. Reedy, K. Keese, and S. Dwyer): presented at EPA Alternative Covers Performance Conference, Denver, Colorado, 2004.

Impact of land use change from natural to agricultural ecosystems on groundwater recharge: presented at American Geophysical Union Meeting, San Francisco, California, 2004.

Impact of land use change on groundwater recharge in the Southern High Plains groundwater resources: presented at Challenges and Opportunities Meeting, Lubbock, Texas, 2004.

Role of vegetation in controlling water balance at the land atmosphere interface in water limited ecosystems: presented at Texas A&M, College Station, Texas, 2004.

UT tech talk: presented at Oregon State University, Corvallis, Oregon, 2004.

UT tech talk: presented at University of Nebraska, Lincoln, Nebraska, 2004.

Vegetational controls on water balance at the land atmosphere interface in semiarid to arid ecosystems: presented at Texas A&M University, College Station, Texas, 2004.

Estimating groundwater recharge to Texas aquifers using unsaturated zone modeling (with K. Keese and R. C. Reedy): poster presented to Austin Geological Society, Austin, Texas, February 2003.

Atmospheric and land surface measurements in a prototype hydrologic observatory (with W. Krajewski, J. Famiglietti, and C. J. Duffy): presented to American Geophysical Union, 2003.

Defining the need for augmented recharge--techniques for quantifying recharge: presented to California Groundwater Resources Association, San Jose, California, 2003.

Ecohydrological controls on the water cycle in desert systems: presented to the U.S. Geological Survey, Reston, Virginia, 2003.

Intercode comparisons for simulating the water balance of engineered covers in semiarid regions (with M. Christman, R. C. Reedy, I. Porro, J. Simunek, and G. N. Flerchinger): presented at the International Applied Phytotechnologies Conference, Chicago, Illinois, 2003.

Review of techniques for estimating groundwater recharge: presented to the Irish Geological Survey, Dublin, Ireland, 2003.

Role of vegetation in controlling water balance at the land-atmosphere interface in water limited ecosystems (with D. Levitt, M. J. Sully, K. Keese, R. C. Reedy, J. Simunek, L. Desotell, and C. Lohrstrofer): presented to American Geophysical Union, 2003.

Techniques for estimating groundwater recharge: presented at 24th Biennium Groundwater Conference and 12th Annual Meeting: Groundwater Resources Association of California, Ontario, CA, 2003.

Unsaturated zone studies related to natural systems and evapotranspiration covers: presented to Pantex AIP, Austin, Texas, October 2002.

Variations in flow and transport in thick desert vadose zones in response to paleoclimatic forcing (0-90 kyr): presented to Department of Geological Sciences, The University of Texas at Austin, October 2002.

Aquifer demonstration: presented to Cedar Creek Elementary School, Austin, Texas, May 2002.

Groundwater fluxes across interfaces: presented to National Academy of Sciences, Door County, Wisconsin, May 2002.

Comparison of various techniques for evaluating unsaturated flow in the Chihuahuan Desert of Texas: presented to the University of Arizona, Department of Hydrology, USGS, Tucson, Arizona, April 2002.

Groundwater modeling in the Barton Springs segment of the Edwards aquifer, Texas: presented to Austin Geological Society, Austin, Texas, April 2002.

Groundwater recharge in Texas: presented to Texas Water Development Board, Austin, Texas, April 2002.

Overview of unsaturated flow studies in semiarid regions: presented to Texas A&M University, College Station, Texas, March 2002.

Groundwater recharge in the Texas High Plains: presented at the Geological Society of America Annual Meeting, Denver, Colorado, 2002.

Monitoring and modeling of engineered covers: presented to the Environmental Protection Agency, Cincinnati, Ohio, 2002.

Groundwater modeling of the Barton Springs segment of the Edwards aquifer: presented at Regional Water Planning Group Meeting, Bastrop, Texas, October 2001.

Suitability of alternative engineered covers for waste containment: presented at Texas Natural Resource Conservation Commission, Austin, Texas, September 2001.

Hydrogeology 346: presented to Jay Famiglietti's class, February 2001.

Isotope Hydrology: presented to Jay Banner's class, March and April, February 2001.

Results of unsaturated zone monitoring at the Pantex Plant: presented at U.S. Department of Energy, Pantex, Amarillo, Texas, February 2001.

Use of engineered covers for waste containment: presented at Air Force Center for Environmental Excellence, San Antonio, Texas, February 2001.

Comparison of different numerical codes for simulating unsaturated flow: presented to Department of Hydrology, University of Nevada, Reno, Nevada, December 2000.

Groundwater recharge in arid climates: assessing the errors: presented at U.S. Geological Survey National Hydrology Meeting, Reno, Nevada, November 2000.

Numerical simulations of engineered cover performance for waste Containment: presented at Department of Geological Sciences, Seminar Series, The University of Texas at Austin, Austin, Texas, October 2000.

Analysis of design, monitoring, and modeling issues related to engineered covers for waste containment: presented to U.S. Environmental Protection Agency, Cincinnati, Ohio, July 2000.

Numerical modeling and monitoring of engineered covers: workshop for educators: presented to U.S. Environmental Protection Agency, Cincinnati, Ohio, July 2000.

Evaluation of natural recharge rates for characterizing waste disposal sites in semiarid regions: presented at Natural Recharge of Groundwater Symposium, Tempe, Arizona, June 2, 2000.

Basic principles of unsaturated zone hydrology: presented to Department of Geological Sciences Field Class, The University of Texas at Austin, Austin, Texas, May 19, 2000.

EarthView Texas: using GIS to see local geology and hydrology: presented at Rio Hondo and Los Fresnos ISD, Brownsville, Texas, February 2000.

Evaluation of groundwater availability in the Barton Springs segment of the Edwards aquifer on the basis of numerical simulations: presented to Lower Colorado Water Planning Group (Region

K) and to Lower Colorado River Authority, Austin, Texas, February 2000.

Techniques for quantifying recharge: Texas Water Development Board, Austin, Texas, February 2000.

Groundwater recharge in arid climates: assessing errors: presented at USGS National Meeting, Reno, Nevada, 2000.

Overview of techniques for quantifying recharge: presented at National Ground Water Association Meeting, Austin, Texas, 2000.

Overview of techniques for quantifying recharge: presented at National Groundwater Association Annual Meeting, Austin, Texas, 2000.

Results of numerical simulations of groundwater flow for the Barton Springs segment of the Edwards aquifer: presented to Lower Colorado River Authority and Regional Water Planning Group K , Austin, Texas, 2000.

Controls on unsaturated flow in semi-arid regions: presented to the U.S. Salinity Laboratory, Riverside, California, 1999.

Evaluation of unsaturated flow in arid settings: presented to the Department of Hydrology, Rehovot, Israel, 1999.

Uncertainties in estimating water fluxes and dating pore water in arid unsaturated zones: presented to the Department of Geological Sciences, The University of Texas at Austin, 1999.

Evaluation of water fluxes and ages in an arid setting: presented at Petroleum and Geosystems Engineering, The University of Texas at Austin, April 1998.

Monitoring techniques related to subsurface gas transport: presented at the University of Arizona, Maricopa Experimental Station, Phoenix, Arizona, 1998.

Use of environmental tracers to estimate water fluxes in the unsaturated zone: presented to Department of Geological Sciences, The University of Texas at Austin, 1998.

Uncertainties in estimating water fluxes and dating pore water in arid unsaturated zones: presented to the Department of Geology, The University of Texas at Dallas, November 1997.

Evaluation of focused recharge beneath playas and implications for agricultural practices: presented to the Texas Agricultural Extension Service at Lubbock, 1997.

Overview of unsaturated zone hydrologic studies related to radioactive waste disposal in Texas: presented to The University of Texas at El Paso, 1997.

Basic Principles of Unsaturated Zone Hydrology: presented to Department of Civil Engineering class on Contaminant Hydrology, March 1996.

Evaluation of Liquid and Vapor Flow in Arid Unsaturated Zones: presented to the Department of Civil Engineering Seminar Series, February 1996.

Quantification of air flow through the unsaturated zone: presented at a Review Meeting on Monitoring Issues Related to the Unsaturated Zone held by the University of Arizona and the Nuclear Regulatory Agency, Maricopa, Arizona, February 1996.

Controls on subsurface flow in an arid setting including evaluation of preferred pathways: presented at the VII Evans Workshop, "Flow and Transport through Unsaturated Fractured Rock," Phoenix, Arizona, 1995.

Issues related to Ward Valley, the proposed low-level radioactive waste disposal facility in California: presented to the Low Level Radioactive Waste Disposal Board, Austin, Texas, 1995.

Review of unsaturated zone studies in arid sites and implications for contaminant transport: presented to Department of Geological Sciences, The University of Texas at Austin, 1995.

Review of unsaturated zone studies in arid sites and implications for contaminant transport: presented to Nuclear Waste Technical Review Board, San Francisco, California, 1995.

Evidence for focused recharge beneath playas in the Southern High Plains, Texas: presented at the Playa Basin Symposium, Texas Tech University, Water Resources Center, Lubbock, Texas, 1994.

Low-level radioactive waste disposal in arid settings: Texas as an example: presented to the Board on Radioactive Waste Management, National Academy of Sciences, Los Angeles, California, 1994.

Analysis of unsaturated flow in desert soils: presented to The University of Texas at Austin, Department of Geological Sciences, 1993.

Evaluation of recharge rates using chemical tracers at low-level radioactive waste disposal sites in the Chihuahuan Desert, Texas: presented at Workshop on Chloride and 36Cl Studies in the Arid Southwest, Las Vegas, Nevada, 1993.

Long-term simulation of nonisothermal liquid and vapor flow in desert soils: case study Chihuahuan Desert, West Texas: presented at Southwest Research Institute, 1993.

Results of numerical simulations of nonisothermal liquid and vapor flow in arid systems: presented at Princeton University, Department of Civil Engineering, 1993.

Evaluation of moisture flux in semiarid soils: presented to The University of Nevada at Reno, Department of Geology, Reno, Nevada, 1992.

Numerical simulations of unsaturated flow in semiarid systems: presented to The University of Arizona at Tucson, Department of Hydrology, Tucson, Arizona, 1992.

Preferential flow in fissured sediments related to site characterization of a low-level radioactive waste disposal facility in Texas: presented at the INTRAVAL workshop, Las Cruces, New Mexico, 1992.

Comparison of chemical and hydraulic approaches in evaluation of moisture flux in desert soils: presented at the U.S. Geological Survey, Denver, Colorado, 1991.

Importance of vapor transport in unsaturated flow in arid systems: a case study in the Chihuahuan Desert of Texas: presented at the University of Nevada, Las Vegas, 1991.

Bomb chlorine-36 analysis in the characterization of unsaturated flow at a proposed radioactive waste disposal facility, Chihuahuan Desert, Texas: presented at the Accelerator Mass Spectrometry Conference, Paris, France, 1990.

Comparison of physical and chemical approaches to evaluation of moisture flux in desert soils: presented at the University of California, Davis, Department of Land, Air, and Water Research, 1990.

Analysis of unsaturated flow in the Chihuahuan Desert, West Texas: presented to the University of Rochester, Department of Geological Sciences, Rochester, New York, 1989.

Summary of unsaturated-zone studies in the Chihuahuan Desert related to low-level radioactive waste disposal: presented to the Texas Low-Level waste disposal Authority, Board of Directors, Austin, Texas, 1989.

Physical controls on hydrochemical variability in a karst aquifer: presented to The University of Texas at Austin, Department of Geological Sciences, hydrogeology seminar, Austin, Texas, 1987.

Activities of a Professional Nature

Professional Societies

American Geophysical Union

Geological Society of America (Fellow)

International Association of Hydrogeologists

National Academy of Engineering (Member)

National Groundwater Association

Funding

Research Support

Investigator: MuSiKAL: Multiphysics Simulations and Knowledge discovery through AI/ML technologies, Dept. of Energy (September 1, 2021-August 31, 2024; $3,000,000).

Principal Investigator: Assessment of Rare Earth Elements and Critical Minerals in Coal and Coal Ash in the U.S. Gulf Coast, Dept. of Energy (September 15, 2021-September 14, 2023; $1,879,191).

Principal Investigator: Strategies for Limiting Nonpoint Source Pollution during Stormwater Recharge in non-Karst Areas in Texas, Texas Commission on Environmnetal Quality (September 2022-August 2023; 179,605.00).

Principal Investigator: Development of Strategies for Limiting Nonpoint Source Pollution during Stormwater Recharge via Improved Sinkholes in Texas, Texas Commission on Environmental Quality (September 1, 2021-August 31, 2022; $177,622).

Principal Investigator: Groundwater Nitrate Contamination in Texas, Texas Commission on Environmental Quality (September 1, 2021-August 31, 2022; $75,000.00).

Principal Investigator: Assessing the Causes and Predictability of Extreme High Rainfall and Linkages to Flooding in Texas, Texas Water Development Board (March 15, 2021-March 31, 2022; $95,392).

Principal Investigator: Integrating GRACE Satellite and Ground-Based Estimates of Groundwater Storage Changes, U.S. Geological Survey and National Science Foundation (October 1, 2016-December 31, 2020; $165,000).

Researcher: Services to Conduct a Statewide Survey of Aquifer Suitability for Aquifer Storage adn Recovery Projects or Aquifer Recharge Projects, Texas Water Development Board (January 1-December 2020; $50,000).

Principal Investigator: Groundwater Fluoride in Texas Aquifers, Texas Commission on Environmental Quality (September 1, 2019-August 31, 2020; $75,000).

Senior Personnel: Graduate Student Education: Reducing Energy Barriers for Novel Water Supply Use in Sustainable Agriculture, NSF Research Traineeship (September 2018-August 2020; $3,000,000).

Principal Investigator: Geospatial Water Risk Assessment and Management: Permian Basin Case Study, Exxon Mobil (March 15, 2017-June 30, 2020; $525,804).

Principal Investigator: Produced Water Reuse, Exxon Mobil Upstream Research (February 1, 2017-December 31, 2019; $579,474).

Principal Investigator: To minimize adverse impacts on aquatic species habitats by optimizing water management for shale oil extraction in Trans Pecos, Texas, Mitchell Foundation (September 1, 2018-August 31, 2019; $126,000).

Principal Investigator: Update on Groundwater Arsenic Levels in Major and Minor Aquifers in Texas, Texas Commission on Environmental Quality (TCEQ) (September 1, 2018-August 31, 2019; $75,000).

Principal Investigator: Evaluation of Arsenic Contamination in Texas, Texas Commission on Environmental Quality (September 1, 2017-August 31, 2018; $75,000).

Principal Investigator: Water Demand for Five Major U.S. Unconventional Reservoirs Relative to Water Supplies, Alfred P. Sloan Foundation (September 1, 2015-August 31, 2018; $530,060).

Principal Investigator: Mapping Fresh, Brackish, and Saline Groundwater, Texas Water Development Board (August 24, 2015-March 1, 2018; $561,446).

Principal Investigator: Groundwater Nitrate Contamination in Texas, Texas Commission on Environmental Quality (September 1, 2016-August 31, 2017; $75,000).

Principal Investigator: Assessing Availability and Impacts of Shale Energy Extraction on Water Resources: Case Study in the Permian Basin, Mitchell Foundation (April 15, 2016-August 31, 2017; $200,000).

Principal Investigator: Evaluation of Brackish Groundwater Zones in Support of House Bill 30, Texas Water Development Board (October 1, 2015-August 31, 2017; $180,000).

Principal Investigator: Statement of Knowledge on Water Issues Related to the Permian Basin, University of Texas Energy Institute (July 1-December 2016; $100,000).

Principal Investigator: Assessment of groundwater fluoride contamination in the Texas High Plains Aquifer, Texas Commission of Environmental Quality (September 1, 2014-August 31, 2015; $70,000).

Principal Investigator: Carbon dioxide injection into shallow sedimentary aquifer systems to assess potential degradation of groundwater quality at geological carbon sequestration sites, Water Research Foundation AWWA (May 2010 - May 2013, $318,000).

Co-PI: Groundwater Nitrogen Source Identification and Remediation in the Texas High Plains and Rolling Plains Regions, Texas State Soil and Water Conservation Board (November 2009 - October 2012, $751,000).

Principal Investigator: Impact of droughts related to climate change on water resources in the High Plains aquifer, Bureau of Reclamation Climate WaterSMART (August 2010 - August 2012, $193,000).

Principal Investigator: Edwards aquifer water balance study, EPA through Texas Commission on Environmental Quality (October 2010 - August 2011, $70,000).

Principal Investigator: Effects of natural water quality on groundwater quantity, Texas Water Development Board (October 2010 - August 2011, $250,000).

Principal Investigator: Sources and remediation of naturally occurring arsenic and fluoride in groundwater in the Gulf Coast and High Plains aquifers, Texas, EPA through Texas Commission on Environmental Quality (October 2010 - August 2011, $465,000).

Principal Investigator: Application of GRACE satellite data for hydrologic modeling in sub-Saharan Africa and South Asia, International Food Policy Research Institute (May 2010 - August 2011, $20,000).

Principal Investigator: Evaluation of Groundwater Resource Availability in the Carrizo Wilcox Aquifer, Texas, Texas Commission of Environmental Quality (September 2009 - August 2011, $500,000).

Principal Investigator: Groundwater Recharge Estimation in the Texas Gulf Coast, Texas Water Development Board (September 2009 - August 2011).

Co-Principal Investigator: Scaling MODIS Evapotranspiration Monitoring Using Ground-based Measurements in a Semiarid Region, NASA (July 2009 - June 2011, $200,000).

Co-Principal Investigator: Application of GRACE Water Storage for Water Resources Management: Case Study, High Plains Aquifer, U.S. NASA (May 2008 - May 2011, $463,000).

Co-Principal Investigator: Application of GRACE Water Storage for Water Resources Management: Case Study, High Plains Aquifer, US, NASA (May 2008 - May 2011, $463,000).

Co-PI: Recharge Estimation in the Texas Gulf Coast Aquifer, Texas Water Development Board (2009 - 2011, $350,000).

Co-PI: Scaling MODIS Evapotranspiration Monitoring Using Ground-Based and Airborne Measurements in a Semiarid Region, NASA (2009 - 2011, $200,000).

Co-Principal Investigator, Groundwater Nitrogen Source Identification and Remediation in the Texas High Plains and Rolling Plains Regions, Texas State Soil and Water Conservation Board, 2009-2011, $751,000

Co-Principal Investigator: Groundwater Nitrogen Source Identification and Remediation in the Texas High Plains and Rolling Plains Regions, Texas State Soil and Water Conservation Board (2009 - 2011, $751,000).

Principal Investigator: Potential Degradation of Groundwater Quality at Geological Carbon Sequestration Sites, American Water Works Association (2009 - 2011, $318,000).

Co-PI: Evaluation of Naturally Occurring Contaminants in Texas Aquifers, Texas Commission on Environmental Quality (September 2009 - August 2010, $453,000).

Principal Investigator: Analysis of Arsenic Contamination in the Gulf Coast Aquifer, Texas Commission on Environmental Quality (TCEQ) (September 2009 - August 2010, $70,000).

Principal Investigator: Assessment of In Situ Treatment of Arsenic in the High Plains and Gulf Coast Aquifers, Texas Commission on Environmental Quality (TCEQ) (September 2009 - August 2010, $461,000).

Principal Investigator: Evaluation of Volcanic Sources of Groundwater Arsenic in the Texas Gulf Coast Aquifers, Texas Commission on Environmental Quality (TCEQ) (September 2008 - August 2009, $70,000).

Principal Investigator: Impacts of Land Use on Naturally Occurring Contaminants in Texas Aquifers, Texas Commission on Environmental Quality (TCEQ) (September 2008 - August 2009, $367,000).

Principal Investigator: Groundwater Recharge Estimation Using Soil Physics and Environmental Tracers in the Central High Plains, Panhandle Regional Planning Commission (June 2007 - August 2009, $356,000).

Principal Investigator: Impacts of Land Management on Groundwater Resources, U.S. DOE (October 2007 - September 2008, $98,000).

Principal Investigator: Ogallala Aquifer Irrigation Integration Study, U.S. Bureau of Reclamation (July 2007 - September 2008, $150,00).

Principal Investigator: Assessment of Geogenic Sources of Groundwater Arsenic Contamination in the Texas Gulf Coast, Texas Commission on Environmental Quality (TCEQ) (September 2007 - August 2008, $70,000).

Principal Investigator: Evaluation of Naturally Occurring Contaminants (Arsenic, Fluoride, Perchlorate) on Groundwater Quality in Texas, Texas Commission on Environmental Quality (TCEQ) (September 2007 - August 2008, $425,000).

Principal Investigator: Short Courses on Groundwater Arsenic Contamination, Fate and Transport of Contaminants, Elements of Groundwater Hydrology, and Groundwater Geochemistry, Texas Commission on Environmental Quality (TCEQ) (September 2007 - August 2008, $50,000).

Principal Investigator: Quantification of Impacts of Agricultural Land Use Management (Conventional Tillage, No Tillage, and Deep Ploughing) on Groundwater Resources, DOE (October 2006 - September 2007, $98,000).

Principal Investigator: Evaluation of Arsenic Contamination in the Southern High Plains in

Texas, Texas Commission on Environmental Quality (TCEQ) (September 2006 - August 2007, $330,000).

Principal Investigator: Groundwater Recharge to the Dockum Aquifer, Subcontractor to INTERA (September 2006 - August 2007, $8,000).

Principal Investigator: Short courses on Groundwater Arsenic Contamination and Fate and Transport of Contaminants, TCEQ (August 2006 - August 2007, $25,000).

Co-Principal Investigator: Development of an Integrated Superconducting Gravity Sensor System for Subsurface Water Storage, NSF (October 2005 - September 2006, $349,416).

Principal Investigator: Assessment of Evapotranspiration in Irrigated Agriculture, DOE Pantex Plant (October 2005 - September 2006, $98,000).

Principal Investigator: Fate and Transport Short Course, Texas Commission on Environmental Quality (September 2005 - August 2006, $22,000).

Principal Investigator: Evaluation of Denitrification in Texas Aquifers, Texas Commission on Environmental Quality (September 2004 - August 2006, $150,000).

Principal Investigator: Evaluation of Groundwater Arsenic Contamination in New Mexico, USPHS Indian Health
USPHS Indian Health Service (September 2005 - May 2006, $70,000).

Principal Investigator: Evaluation of Recharge and Evapotranspiration Related to Waste Containment, DOE Pantex Plant (October 2000 - September 2005, $457,000).

Principal Investigator: Evaluation of Groundwater Contamination Related to Noncompliant Public Water Systems in Brazoria, Ector, Hickory, and Midland Counties in Texas, Texas Commission on Environmental Quality (September 2004 - August 2005, $157,000).

Principal Investigator: Evaluation of the Impact of Land Use/Land Cover Changes on Groundwater Recharge in the High Plains Aquifer, Bureau of Reclamation (2005, $95,000).

Principal Investigator: Assessment of nitrate contamination in the Seymour aquifer in Texas, TCEQ (2004 - 2005, $500,000).

Principal Investigator: Evaluation of arsenic in groundwater in Texas, EPA through TCEQ (2004 - 2005, $400,000).

Principal Investigator: Groundwater surface water interactions in Texas, EPA through TCEQ (2004 - 2005, $200,000).

Principal Investigator: Monitoring and Modeling the Performance of Evapotranspiration Covers for Waste Containment, EPA (October 2002 - September 2003, $75,000).

Principal Investigator: Evaluation of nonpoint source contamination from nitrate using logistic regression analysis, Texas Commission on Environmental Quality (2003, $60,000).

Principal Investigator: Quantification of groundwater recharge in Texas using modeling and field measurements, Texas Commission on Environmental Quality (2002 - 2003, $285,000).

Principal Investigator: Monitoring and Modeling the Performance of Evapotranspiration Covers for Waste Containment, EPA (October 2001 - September 2002, $250,000).

Principal Investigator: Monitoring and Modeling the Performance of Evapotranspiration Covers for Waste Containment, EPA (October 2000 - September 2001, $225,000).

Principal Investigator: Groundwater recharge in Texas, Texas Water Development Board (2000 - 2001, $103,000).

Principal Investigator: Monitoring and Modeling the Performance of Evapotranspiration Covers for Waste Containment, EPA (October 1999 - September 2000, $150,000).

Principal Investigator: Evaluation of electromagnetic induction as a noninvasive technique for monitoring water movement into and beneath waste disposal facilities, EPRI (1999 - 2000, $35,000).

Principal Investigator: Development of a monitoring station for estimating interplaya recharge, DOE (1998 - 1999, $50,000).

Co-Principal Investigator: Geologic and hydrologic studies of the Eagle Flat area, Texas Low-Level Radioactive Waste Disposal Authority (1997 - 1998, $451,000).

Principal Investigator: Development of a monitoring station for estimating interplaya recharge, DOE (1997 - 1998, $60,000).

Principal Investigator: Evaluation of monitoring programs for engineered barriers for waste disposal, DOE (1997 - 1998, $120,000).

Principal Investigator: Implementation of test plan, for Ward Valley recharge studies Department of Health Services, California (1997 - 1998, $260,000).

Co-Principal Investigator: Geologic and hydrologic studies of the Eagle Flat area, Texas Low-Level Radioactive Waste Disposal Authority (1996 - 1997, $850,000).

Principal Investigator: Development of a monitoring station for estimating interplaya recharge, DOE (1996 - 1997, $134,000).

Co-Principal Investigator: Geologic and hydrologic studies of the Eagle Flat area, Texas Low-Level Radioactive Waste Disposal Authority (1995 - 1996, $100,000).

Principal Investigator: Studies to optimize the monitoring system of a trench and engineered barrier in an arid setting, Idaho National Engineering Laboratory, National Low-Level Radioactive Waste Program, U.S. Department of Energy (1995, $100,000).

Co-Principal Investigator: Geologic and hydrologic studies of the Eagle Flat area, Texas Low-Level Radioactive Waste Disposal Authority (1994 - 1995, $730,000).

Principal Investigator: Application of electromagnetic methods and bomb pulse tracers to evaluate flow in fissured sediments, Idaho National Engineering Laboratory, National Low-Level Waste Disposal Program, U.S. Department of Energy (1994 - 1995, $90,000).

Researcher: Geologic and hydrologic site characterization of the Pantex Plant, U.S. Department of Energy (1990 - 1995, $7,405,000).

Researcher: Low-level radioactive waste, Eagle Flat, Texas Low-Level Radioactive Waste Disposal Authority (1993 - 1994, $2,438,917).

Researcher: Low-level radioactive waste, Eagle Flat, Texas Low-Level Radioactive Waste Disposal Authority (1992 - 1993).

Researcher: Low-level radioactive waste, Eagle Flat, Texas Low-Level Radioactive Waste Disposal Authority (1991 - 1992, $290,729).

Publications

Peer Reviewed Authored Books

Scanlon, B. R., 2018, (with nine co-authors), Future directions for the U.S. Geological Survey's Energy Resources Program: Washington, DC, National Academies Press, 168 p., http://doi.org/10.17226/25141.

Peer Reviewed Journal Articles

Darvari, R., Nicot, J.-P., Scanlon, B. R., Kyle, J. R., Elliott, B. A., and Uhlman, K., 2024, Controls on lithium content of oilfield waters in Texas and neighboring states (USA): Journal of Geochemical Exploration, v. 257, no. 107363, 15 p., http://doi.org/10.1016/j.gexplo.2023.107363.

Lee, W., Sun, A. Y., Scanlon, B. R., and Dawson, C., 2024, Hindcasting compound pluvial, fluvial and coastal flooding during Hurricane Harvey (2017) using Delft3D-FM: Natural Hazards, v. 120, no. 1, p. 851-880, http://doi.org/10.1007/s11069-023-06247-9.

Hennings, P., Staniewicz, S., Smye, K., Chen, J., Horne, E., Nicot, J.-P., Ge, J., Reedy, R., and Scanlon, B., 2023, Development of complex patterns of anthropogenic uplift and subsidence in the Delaware Basin of West Texas and southeast New Mexico, USA: Science of The Total Environment, v. 903, no. 166367, 16 p., http://doi.org/10.1016/j.scitotenv.2023.166367.

Hower, J. C., Warwick, P. D., Scanlon, B. R., Reedy, R. C., and Childress, T. M., 2023, Distribution of rare earth and other critical elements in lignites from the Eocene Jackson Group, Texas: International Journal of Coal Geology, v. 275, no. 104302, 21 p., http://doi.org/10.1016/j.coal.2023.104302.

Ikonnikova, S. A., Scanlon, B. R., and Berdysheva, S. A., 2023, A global energy system perspective on hydrogen trade: a framework for the market color and the size analysis: Applied Energy, v. 330, part A, no. 120267, 23 p., http://doi.org/10.1016/j.apenergy.2022.120267.

Ikonnikova, S. A., Scanlon, B. R., and Berdysheva, S. A., 2023, A global energy system perspective on hydrogen Trade: a framework for the market color and the size analysis: Applied Energy, v. 330, part A, no. 120267, 23 p., http://doi.org/10.1016/j.apenergy.2022.120267.

Scanlon, B. R., Fakhreddine, S., Rateb, A., de Graaf, I., Famiglietti, J., Gleeson, T., Grafton, R. Q., Jobbagy, E., Kebede, S., Kolusu, S. R., Konikow, L. F., Long, D., Mekonnen, M., Schmied, H. M., Mukherjee, A., MacDonald, A., Reedy, R. C., Shamsudduha, M., Simmons, C. T., Sun, A., Taylor, R. G., Villholth, K. G., Vörösmarty, C. J., and Zheng, C., 2023, Global water resources and the role of groundwater in a resilient water future: Nature Reviews: Earth & Environment, v. 4, p. 87-101, http://doi.org/10.1038/s43017-022-00378-6.

Scanlon, B. R., Reedy, R. C., Fakhreddine, S., Yang, Q., and Pierce, G., 2023, Drinking water quality and social vulnerability linkages at the system level in the United States: Environmental Research Letters, v. 18, no. 094039, 12 p., http://doi.org/10.1088/1748-9326/ace2d9.

Acevedo, J. P., Lemons, C. R., Young, M. H., McDaid, G., and Scanlon, B. R., 2022, Analysis of wastewater injection and prospect regions for induced seismicity in the Texas panhandle, United States: AAPG Bulletin, v. 106, no. 4, p. 679-699, http://doi.org/10.1306/EG.01072120005.

Lancia, M., Yao, Y., Andrews, C. B., Wang, X., Kuang, X., Ni, J., Gorelick, S. M., Scanlon, B. R., Wang, Y., and Zheng, C., 2022, The China groundwater crisis: a mechanistic analysis with implications for global sustainability: Sustainable Horizons, v. 4, no. 100042, 10 p., http://doi.org/10.1016/j.horiz.2022.100042.

Li, Xueying, Long, D., Scanlon, B. R., Mann, M. E., Li, Xingdong, Tian, F., Sun, Z., and Wang, G., 2022, Climate change threatens terrestrial water storage over the Tibetan Plateau: Nature Climate Change, v. 12, p. 801-807, http://doi.org/10.1038/s41558-022-01443-0.

Li, Z., Zhang, Z., Scanlon, B. R., Sun, A. Y., Pan, Y., Qiao, S., Wang, H., and Jia, Q., 2022, Combining GRACE and satellite altimetry data to detect change in sediment load to the Bohai Sea: Science of The Total Environment, v. 818, no. 151677, 10 p., http://doi.org/10.1016/j.scitotenv.2021.151677.

Rateb, A., Sun, A., Scanlon, B. R., Save, H., and Hasan, E., 2022, Reconstruction of GRACE mass change time series using a Bayesian framework: Earth and Space Science, v. 9, no. e2021EA002162, 13 p., http://doi.org/10.1029/2021EA002162.

Scanlon, B. R., Fakhreddine, S., Reedy, R. C., Yang, Q., and Malito, J. G., 2022, Drivers of spatiotemporal variability in drinking water quality in the United States: Environmental Science & Technology, v. 56, no. 18, p. 12965-12974, http://doi.org/10.1021/acs.est.1c08697.

Scanlon, B. R., Rateb, A., Anyamba, A., Kebede, S., MacDonald, A. M., Shamsudduha, M., Small, J., Sun, A., Taylor, R. G., and Xie, H., 2022, Linkages between GRACE water storage,

hydrologic extremes, and climate teleconnections in major African aquifers: Environmental Research Letters, v. 17, no. 1, article no. 014046, 15 p., http://doi.org/10.1088/1748-9326/ac3bfc.

Scanlon, B. R., Reedy, R. C., and Wolaver, B. D., 2022, Assessing cumulative water impacts from shale oil and gas production: Permian Basin case study: Science of The Total Environment, v. 811, no. 152306, 11 p., http://doi.org/10.1016/j.scitotenv.2021.152306.

Wu, Y., Long, D., Lall, U., Scanlon, B. R., Fuqiang, T., Xudong, F., Zhao, J., Zhang, J., Wang, H., and Hu, C., 2022, Reconstructed eight-century streamflow in the Tibetan Plateau reveals contrasting regional variability and strong nonstationarity: Nature Communications, v. 13, no. 6416, p. 801-807, http://doi.org/10.1038/s41467-022-34221-9.

Yang, D., Xu, X., and Scanlon, B. R., 2022, Multisource remote sensing data facilitate ecohydrological simulations without runoff calibration: Hydrological Processes, v. 36, no. e14773, 13 p., http://doi.org/10.1002/hyp.14773.

Yang, W., Long, D., Scanlon, B. R., Burek, P., Zhang, C., Han, Z., Butler, J. J., Jr., Pan, Y., Lei, X., and Wada, Y., 2022, Human intervention will stabilize groundwater storage across the North China Plain: Water Resources Research, v. 58, no. 2, article no. e2021WR030884, 21 p., http://doi.org/10.1029/2021WR030884.

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