

KENNETH C. CARROLL

Plant & Environmental Sciences Department of New Mexico State University (NMSU)

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EDUCATION

Ph.D. from University of Arizona (UA), 2007

Major: Hydrology and Water Resources

Minor: Soil, Water, and Environmental Science (SWES)

M.S. from Ohio University (OU), 1999

Major: Aqueous/Environmental Geochemistry

B.S. from OU, 1996

Major: Geological Sciences

PROFESSIONAL EXPERIENCE

2018–Present Affiliated Faculty: NM Water Resources Research Institute

2017–Present Associate Professor: Plant & Environmental Sciences Department and Water Science & Management (WSM) Graduate Program NMSU

2017–Present Expert Reviewer and Witness: DOE Los Alamos & Elephant Butte Irrigation District

2013 – 2017 Assistant Professor: Plant & Environmental Sciences Department and WSM Graduate Program NMSU

2010 – 2013 Research Scientist: Environmental Systems Group at Pacific Northwest National Laboratory (PNNL)

2007 – 2010 Postdoctoral Researcher/Laboratory Manager: UA SWES Department

2004 – 2007 Hydrogeologist and Geochemist: Water Management Consultants

2003 – 2004 Hydrogeologist and Geochemist: Hydro Geo Chem, Inc.

1999 – 2003 Research Assistant: SWES Department at UA

1997 – 1999 Teaching Assistant: Geological Sciences Department at OU

SELECTED TEACHING EXPERIENCE

NMSU **Geohydrology** (every fall since 2013): Undergraduate & Graduate Level (ES/WSAM/CE/GEOL 452) 4 credits (3 credits for lecture and 1 credit for lab)

NMSU **Arid Region Water Resources Issues Seminar** (every spring since 2014): Graduate Level (WSAM/ES 605) 3 credits

NMSU **Land Use Environmental Impact and Contaminant Remediation** (every spring since 2014): Undergraduate & Graduate Level (WSAM/ES 470) 3 credits

2001 – 2009 SWES Department UA (Guest Lecture): *Environmental Monitoring and Remediation* (undergraduate level), *Environmental Pollution* (undergraduate level; 2 times), *Contaminant Transport* (graduate level; 3 times).

1997 – 1999 Geological Sciences at OU (Teaching Assistant): *Hydrogeology Field Camp* (graduate level; 2 times), *Water Geochemistry* (undergraduate/graduate level; 2 times),

Geomorphology (undergraduate level; 2 times), **Hydrogeology II (Groundwater Modeling)** (graduate level), **Hydrogeology III (Solute Transport)** (graduate level), **Physical Geology** (undergraduate level).

HONORS AND AWARDS

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- 2021 – Awarded the Mobley Family Endowed Distinguished Research Award through the College of Agricultural, Consumer, and Environmental Sciences (ACES) at NMSU
- 2021 – Awarded Mid-Career Award for Applied Research by Universities Council on Water Resources
- 2019 – Awarded Herb Ward Family Endowed Interdisciplinary Chair in Environmental and Water Science
- 2019 – Online video won (with Barbara Chamberlin, ACES Media Productions, and April Ulery) a national Gold Award for "motion graphics/augmented reality/virtual reality/animation" from the Association for Communications Excellence professional association.
- 2017 – Awarded *Early Career Award* for the 17th Annual University Research Council for Exceptional Achievements in Creative Scholarly Activity at NMSU
- 2016 – Awarded *Patricia Christmore Faculty Teaching Award* for Superb Junior Faculty Excellence in Teaching at NMSU
- 2015 – Awarded *Outstanding Reviewer Status* for *Journal of Contaminant Hydrology*.
- 2015 – Elected Chair for Groundwater Technical Committee of American Geophysical Union (AGU) Hydrology Section
- 2014 – Elected Deputy Chair for Groundwater Technical Committee of AGU Hydrology Section
- 2002 – Awarded Superfund Basic Research Prog. 2002 Annual Meeting: Best Student Poster
- 1998 – Awarded Graduate Alumni Research Grants OU *Geol. Sci. R.C. Johnson Grant Award*
- 1998 – Awarded American Assoc. of Petroleum Geologists Foundation *Grants-in-Aid Award*
- 1996 – Awarded Sigma Gamma Epsilon *Tarr Award*

REFEREED JOURNAL PUBLICATIONS (* DENOTES NMSU STUDENTS ADVISED BY CARROLL, § DENOTES NMSU POSTDOCS ADVISED BY CARROLL, AND † DENOTES STUDENTS/POSTDOCS ADVISED OR CO-ADVISED BY CARROLL FROM OTHER INSTITUTIONS)

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- Jiang, W., B. Pokharel, L. Lin, H. Cao, **K.C. Carroll**, Y. Zhang, C. Galdeano, D.A. Musale, G.L. Ghurye, and P. Xu (In Press) Analysis and Prediction of Produced Water Quantity and Quality in the Permian Basin using Machine Learning Techniques. *Science of the Total Environment*.
 - Akyol, N.H., **K.C. Carroll**, E.C. Cortuk, O.C. Gunduz, and N. Sahin (In Press) Comparison of Sorption and Solute Transport Behavior of Several Herbicides in an Alkaline Agricultural Soil. *International Journal of Environmental Analytical Chemistry*.
 - Huang, D., N.A. Khan[§], G. Wang, **K.C. Carroll**, and M.L. Brusseau (In Press) The Co-Transport of PFAS and Cr(VI) in Porous Media. *Chemosphere*.
 - Mohamed[§], R.A.M., S.C. Brooks, C.-H. Tsai*, T. Ahmed, D.F. Rucker, A.L. Ulery, E.M. Pierce, and K.C. Carroll (2021) Geostatistical Interpolation of Streambed Hydrologic Attributes with Addition of Left Censored Data and Anisotropy. *Journal of Hydrology*, Volume 599, 126474, ISSN 0022-1694, <https://doi.org/10.1016/j.jhydrol.2021.126474>.

5. Wang, Y., N.A. Khan[§], D. Huang, **K.C. Carroll**, and M.L. Brusseau (2021) Transport of PFOS in Aquifer Sediment: Transport Behavior and a Distributed-Sorption Model. *Science of the Total Environment*, Volume 779, 146444, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2021.146444>.
6. Rucker, D., C.-H. Tsai*, **K.C. Carroll**, S.C. Brooks, E. Pierce, A. Ulery, and C. DeRolph (2021) Bedrock Architecture, Soil Structure, and Hyporheic Zone Characterization Combining Electrical Resistivity and Induced Polarization Imaging. *Applied Geophysics*, Volume 188,104306, ISSN 0926-9851, <https://doi.org/10.1016/j.jappgeo.2021.104306>.
7. Zhao, X., Y. Li, **K.C. Carroll**, F. Li, L. Qiu, Z. Huo (2021) Mesoporous goethite for rapid and high-capacity fluoride removal from drinking water. *Journal of Environmental Chemical Engineering*, Volume 9, Issue 4, 105278, ISSN 2213-3437, <https://doi.org/10.1016/j.jece.2021.105278>.
8. Markovich, K.H., L.E. Condon, **K.C. Carroll**, R. Purtschert, and J.C. McIntosh (2021) A mountain-front recharge component characterization approach combining groundwater age distributions, noble gas thermometry, and fluid and energy transport modeling. *Water Resources Research*, 57, e2020WR027743. <https://doi.org/10.1029/2020WR027743>
9. Van Glubt, S., M.L. Brusseau, N. Yan, D. Huang, N. Khan[§], and **K.C. Carroll** (2020) Column Versus Batch Methods For Measuring PFAS Adsorption to Geomedia. *Environmental Pollution*, Volume 268, Part B, 115917, ISSN 0269-7491. <https://doi.org/10.1016/j.envpol.2020.115917>
10. Bridges*, L., R.A.M. Mohamed[§], N.A. Khan[§], M.L. Brusseau, and **K.C. Carroll** (2020) Comparison of Manganese Dioxide and Permanganate as Amendments with Persulfate for Aqueous 1,4-Dioxane Oxidation. *Water*, 12, 3061. Editor's choice: https://www.mdpi.com/journal/water/editors_choice
11. Ulery, A., A. Smith Muise, **K.C. Carroll**, B. Chamberlin, L. White, P. Martinez, L. Spears, and J. Gleason (2020) Impact of Digital Teaching Tools in Agricultural Science Classes. *Nat. Sci. Educ.*, 49:e20011. <https://doi.org/10.1002/nse2.20011>.
12. Khan[§], N.A., and **K.C. Carroll** (2020) Natural Attenuation Method for Contaminant Remediation Reagent Delivery Assessment for In Situ Chemical Oxidation Using Aqueous Ozone. *Chemosphere*, Volume 247, 125848.
13. Brusseau, M.L., N.A. Khan[§], Y. Wang, N. Yan, and **K.C. Carroll** (2019) Nonideal Transport and Low-Concentration Elution Tailing of PFOS in Soil. *Environmental Science & Technology*, 53(18): 10654-10664.
14. Chaudhary[§], B.K., R. Sabie, M.A. Engle, P. Xu, S. Willman*, and **K.C. Carroll** (2019) Spatial variability of produced-water quality and alternative-source water analysis applied to the Permian Basin, USA. *Journal of Hydrogeology*, 27(8): 2889–2905.
15. Fuchs*, E.H., J.P. King, and **K.C. Carroll** (2019) Quantifying Disconnection of Groundwater from Managed Ephemeral Surface Water During Drought and Conjunctive Agricultural Use. *Water Resources Research*, 55, 5871-5890. <https://doi.org/10.1029/2019WR024941>.
16. Milavec*, J., G.R. Tick, M.L. Brusseau, and **K.C. Carroll** (2019) 1,4-Dioxane Cosolvency Impacts on Trichloroethylene Dissolution and Sorption. *Environmental Pollution*, 252, Part A: 777-783.
17. Khan*, N.A., M.D. Johnson, J.D. Kubicki, F.O. Holguin, B. Dungan, and **K.C. Carroll** (2019) Cyclodextrin-Enhanced 1,4-Dioxane Treatment Kinetics with TCE and 1,1,1-TCA Using Aqueous Ozone. *Chemosphere*, March, 219:335-344.
18. Brusseau, M.L., N. Yan, S. Van Glubt, Y. Wang, W. Chen, Y. Lyu, B. Dungan, **K.C. Carroll**, and F.O. Holguin (2019) Comprehensive Retention Model for PFAS Transport in Subsurface Systems. *Water Research*, January, 148:41-50.
19. Brusseau, M.L., **K.C. Carroll**, Z. Guo, and J. Mainhagu (2018) Borehole Diffusive Flux Apparatus for Characterizing Diffusive Mass-transfer in Subsurface Systems. *Environmental Earth Sciences*, September, 77:648.

20. Payne, J.L., N.N. Bhakta, S. Lyons, R.A.M. Mohamed[§], **K.C. Carroll**, and C.E. Brewer (2018) Potential of Pyrolysis of Spacecraft Solid Waste for Water Recovery and Plant-Growth Media Production. *Journal of Analytical and Applied Pyrolysis*, 135: 184-188.
21. Fuchs*, E.H., **K.C. Carroll**, and J.P. King (2018) Quantifying Groundwater Resilience Through Conjunctive Use for Irrigated Agriculture in a Constrained Aquifer System. *Journal of Hydrology*, 565: 747-759. <https://doi.org/10.1016/j.jhydrol.2018.08.003>.
22. Khan*, N.A., M.D. Johnson, and **K.C. Carroll** (2018) Spectroscopic methods for aqueous cyclodextrin inclusion complex binding measurement for 1,4-dioxane, chlorinated co-contaminants, and ozone. *Journal of Contaminant Hydrology*, 210(March):31-41.
23. Shao, H., S. Kabilan, S. Stephens, N. Suresh, A.N. Beck, T. Varga, P.F. Martin, A. Kuprat, H. B. Jung, W. Um, A. Bonneville, D.J. Heldebrant, **K.C. Carroll**, J. Moore, and C.A. Fernandez (2018) Corrigendum to "Environmentally friendly, rheoreversible, hydraulic-fracturing fluids for enhanced geothermal systems"[*Geothermics* 58 (2015) 22-31]. *Geothermics*, 72: 323-325.
24. Mateas[†], D.J., G.R. Tick, and **K.C. Carroll** (2017) In Situ Stabilization of NAPL Contaminant Source-Zones as a Remediation Technique to Reduce Mass Discharge and Flux to Groundwater. *Journal of Contaminant Hydrology*, 204(September): 40-56.
25. Padgett[†], M.C., G.R. Tick, **K.C. Carroll**, and W.R. Burke (2017) Chemical Structure Influence on NAPL Mixture Nonideality Evolution, Rate-Limited Dissolution, and Contaminant Mass Flux. *Journal of Contaminant Hydrology*. *Journal of Contaminant Hydrology*, 198:11-23.
26. Dettmer*, A., R. Ball, T.B. Boving, N. Khan*, T. Schaub, N. Sudasinghe, C.A. Fernandez, and **K.C. Carroll** (2017) Stabilization and Prolonged Reactivity of Aqueous-Phase Ozone with Cyclodextrin. *Journal of Contaminant Hydrology*, 196:1-9.
27. McDonald[†], K., **K.C. Carroll**, and M.L. Brusseau (2016) Comparison of fluid-fluid interfacial areas measured with X-ray microtomography and interfacial partitioning tracer tests for the same samples. *Water Resources Research*, 52 (7): 5393-5399, doi:10.1002/2016WR018775.
28. Chen[§], H. and **K.C. Carroll** (2016) Metal-Free Catalysis of Persulfate by Nitrogen-Doped Graphene and Aminated Graphene. *Environmental Pollution*, 215: 96-102. doi:10.1016/j.envpol.2016.04.088.
29. Engle, M.A., F.R. Reyes, M.S. Varonka, W.H. Orem, L. Ma, A.J. Ianno, T.M. Schell, P. Xu, and **K.C. Carroll** (2016) Geochemistry of formation waters from the Wolfcamp and "Cline" shales: Insights into brine origin, reservoir connectivity, and fluid flow in the Permian Basin, USA. *Chemical Geology*, 425: 76-92. doi:10.1016/j.chemgeo.2016.01.025 (top downloaded paper).
30. Khan*, N.A., M.A. Engle, B. Dungan, F.O. Holguin, P. Xu, and **K.C. Carroll** (2016) Volatile-Organic Molecular Characterization of Shale-Oil Produced Water from the Permian Basin. *Chemosphere*, 148: 126-136, doi:10.1016/j.chemosphere.2015.12.116.
31. Shao, H., S. Kabilan, S. Stephens, N. Suresh, A.N. Beck, T. Varga, P.F. Martin, A. Kuprat, H. B. Jung[†], W. Um, A. Bonneville, D.J. Heldebrant, **K.C. Carroll**, J. Moore, and C.A. Fernandez (2015) Environmentally Friendly, Rheoreversible, Hydraulic- Fracturing Fluids for Enhanced Geothermal Systems. *Geothermics*, 58: 22-31.
32. **Carroll, K.C.**, K. McDonald[†], J. Marble, A.E. Russo, and M.L. Brusseau (2015) The impact of transitions between two-fluid and three-fluid phases on fluid configuration and fluid-fluid interfacial area in porous media, *Water Resources Research*, 51, 7189-7201, doi:10.1002/2015WR017490.
33. Brusseau, M.L., J. Mainhagu, C. Morrison, and **K.C. Carroll** (2015) The vapor-phase multi-stage CMD test for characterizing contaminant mass discharge associated with VOC sources in the vadose zone: Application to three sites in different lifecycle stages of SVE operations. *Journal of Contaminant Hydrology*, 179(1): 55-64.

34. Jung[†], H.B., **K.C. Carroll**, S. Kabilan, D.J. Heldebrant, D. Hoyt, L. Zhong, T. Varga, S. Stephens, L. Adams, A. Bonneville, A. Kuprat, and C.A. Fernandez (2015) Stimuli-Responsive/ Rheoreversible Hydraulic Fracturing Fluids as a Greener Alternative to Support Geothermal and Fossil Energy Production. *Green Chemistry*, 17: 2799-2812. DOI: 10.1039/C4GC01917B.
35. Scheibe, T.D., E.M. Murphy, C. Xingyuan, A. Rice, **K.C. Carroll**, B.J. Palmer, A.M. Tartakovsky, I. Battiato, and B.D. Wood (2015) An Analysis Platform for Multiscale Hydrogeologic Modeling with Emphasis on Hybrid Multiscale Methods. *Groundwater*, 53(1): 38-56. doi: 10.1111/gwat.12179.
36. Marble, J., M.L. Brusseau, **K.C. Carroll**, M. Plaschke, L. Furig, and F. Brinker (2014) Application of a Persistent Dissolved-Phase Reactive Treatment Zone for Mitigation of Mass Discharge from Sources Located in Lower-Permeability Sediments. *Water, Air, & Soil Pollution*, 225:2198. DOI 10.1007/s11270-014-2198-0
37. Matthieu, D.E., M.L. Brusseau, Z. Guo, **K.C. Carroll**, M. Plaschke, and F. Brinker (2014) Persistence of a Groundwater Contaminant Plume after Hydraulic Source Containment at a Chlorinated-Solvent Contaminated Site. *Groundwater Monitoring & Remediation*, 34(4): 23–32. doi: 10.1111/gwmmr.12077.
38. Miao, Z., C. Carreón-Diazconti, **K.C. Carroll**, and M.L. Brusseau (2014) The Impact of Biostimulation on the Fate of Sulfate and Associated Sulfur Dynamics in Groundwater. *Journal of Contaminant Hydrology*, 164(August):240–250.
39. Jung[†], H.B., S. Kabilan, J.P. Carson, A.P. Kuprat, W. Um, P. Martin, M. Dahl, T. Kafentzis, T. Varga, S. Stephens, B. Arey, **K.C. Carroll**, A. Bonneville, and C.A. Fernandez (2014) Wellbore Cement Fracture Evolution at the Cement-Basalt Caprock Interface during Geologic Carbon Sequestration. *Applied Geochemistry*, 47:1–16.
40. Cantrell, K.J., **K.C. Carroll**, E.C. Buck, D. Neiner, and K.N. Geiszler (2014) Corrigendum to “Single-Pass Flow Through Test Elucidation of Weathering Behavior and Evaluation of Contaminant Release Models for Hanford Tank Residual Radioactive Waste” [Applied Geochemistry 28 (2013) 119–127]. *Applied Geochemistry*, Volume 51, December 2014, Page 327.
41. Ostrom, M., M.J. Truex, A. Rice, C.D. Johnson, **K.C. Carroll**, D.J. Becker, and M.A. Simon (2014) Estimating the Impact of Vadose Zone Sources on Groundwater to Support Performance Assessment of Soil Vapor Extraction. *Groundwater Monitoring & Remediation*, 34: 71–84. doi: 10.1111/gwmmr.12050.
42. Ostrom, M., M.J. Truex, **K.C. Carroll**, and G.B. Chronister (2013) Perched-water Analysis Related to Deep Vadose Zone Contaminant Transport and Impact to Groundwater. *Journal of Hydrology*, 505: 228–239.
43. Miao, Z., **K.C. Carroll**, and M.L. Brusseau (2013) Characterization and Quantification of Groundwater Sulfate Sources at a Mining Site in an Arid Climate: The Monument Valley Site in Arizona, USA. *Journal of Hydrology*, 504: 207–215.
44. Brusseau, M.L., **K.C. Carroll**, M. Truex, and D. Becker (2013) Characterization and Remediation of Chlorinated Volatile Organic Contaminants in the Vadose Zone: An Overview of Issues and Approaches. *Invited to Vadose Zone Journal*, 12(4):1-17. doi:10.2136/vzj2012.0137.
45. **Carroll, K.C.**, M. Truex, M.L. Brusseau, K. Parker, R. Mackley, and V.J. Rohay (2013) Characterization of Persistent Volatile Contaminant Sources in the Vadose Zone. *Ground Water Monitoring & Remediation*, 33: 68–84. doi: 10.1111/gwmmr.12006.
46. Fang, Y., B.N. Nguyen, **K.C. Carroll**, Z. Xu, S.B. Yabusaki, T.D. Scheibe, and A. Bonneville (2013) Development of a Coupled Thermo-Hydro-Mechanical Model in Discontinuous Media for Carbon Sequestration. *International Journal of Rock Mechanics and Mining Sciences*, 62: 138-147.

47. Brusseau, M.L., D.E. Matthieu III, **K.C. Carroll**, J. Mainhagu, C. Morrison, A. McMillan[†], A. Russo, and M. Plaschke (2013) Characterizing Long-term Contaminant Mass Discharge and the Relationship Between Reductions in Discharge and Reductions in Mass for DNAPL Source Areas. *Journal of Contaminant Hydrology*, 149: 1–12.
48. Cantrell, K.J., **K.C. Carroll**, E.C. Buck, D. Neiner, and K.N. Geiszler (2013) Single-Pass Flow Through Test Elucidation of Weathering Behavior and Evaluation of Contaminant Release Models for Hanford Tank Residual Radioactive Waste. *Applied Geochemistry*, 28: 119-127.
49. Miao, Z., M.L. Brusseau, **K.C. Carroll**, C. Carreón Diazconti, and B. Johnson (2012) Sulfate Reduction in Groundwater: Characterization and Applications for Remediation. *Environmental Geochemistry and Health*, 34(4): 539-550.
50. Borden, A.K., M.L. Brusseau, **K.C. Carroll**, N.H. Akyol, A. McMillan[†], J. Berkompas, Z. Miao, F. Jordan, G. Tick, W.J. Waugh, and E.P. Glenn (2012) Ethanol Addition for Enhancing Denitrification at the Uranium Mill Tailing Site in Monument Valley, Arizona. *Water, Air, & Soil Pollution*, 223: 755–763.
51. **Carroll, K.C.**, M. Oostrom, M.J. Truex, V.J. Rohay, and M.L. Brusseau (2012) Assessing Performance and Closure for Soil Vapor Extraction: Integrating Vapor Discharge and Impact to Groundwater Quality. *Journal of Contaminant Hydrology*, 128: 71-82.
52. Brusseau, M.L., **K.C. Carroll**, T. Allen, J. Baker, W. DiGuseppi, J. Hatton, C. Morrison, A. Russo, and J. Berkompas (2011) Impact of In Situ Chemical Oxidation on Contaminant Mass Discharge: Linking Source-Zone and Plume-Scale Characterizations of Remediation Performance. *Environmental Science & Technology*, 45: 5352–5358.
53. Marble, J.C., **K.C. Carroll**, H. Janousek, and M.L. Brusseau (2010) In Situ Oxidation and Associated Mass-Flux Reduction/Mass-Removal Behavior for Systems with Organic Liquid Located in Lower-Permeability Sediments. *Journal of Contaminant Hydrology*, 117: 82–93.
54. DiFilippo, E.L., **K.C. Carroll**, and M.L. Brusseau (2010) Impact of Organic-Liquid Distribution and Flow-Field Heterogeneity on Reductions in Mass Flux. *Journal of Contaminant Hydrology*, 115: 14–25.
55. **Carroll, K.C.**, F.L. Jordan, E.P. Glenn, J. Waugh, and M.L. Brusseau (2009) Comparison of Nitrate Attenuation Characterization Methods at the Uranium Mill Tailings Site in Monument Valley, Arizona. *Journal of Hydrology*, 378: 72–81.
56. **Carroll, K.C.**, and M.L. Brusseau (2009) Dissolution, Cyclodextrin-Enhanced Solubilization, and Mass Removal of an Ideal Multicomponent Organic Liquid. *Journal of Contaminant Hydrology*, 106(1-2): 62-72.
57. **Carroll, K.C.**, R. Taylor, E. Gray, and M.L. Brusseau (2009) The Impact of Composition on the Physical Properties and Evaporative Mass Transfer of a PCE-Diesel Immiscible Liquid. *Journal of Hazardous Materials*, 164(2-3): 1074-1081.
58. Glenn, E.P., K. Morino, K. Didan, F.L. Jordan, **K.C. Carroll**, P. Nagler, K. Hultine, L. Sheader, and J. Waugh (2008) Scaling Sap Flux Measurements of Grazed and Ungrazed Shrub Communities with Fine and Coarse-Resolution Remote Sensing. *Ecohydrology*, 1(4): 316-329.
59. **Carroll, K.C.**, J.F. Artiola, and M.L. Brusseau (2006) Transport of Molybdenum in a Biosolid Amended Alkaline Soil. *Chemosphere*, 65: 778-785.
60. **Carroll, K.C.**, D.L. López, and M.W. Stoertz (2003) Solute Transport at Low Flow in an Acid Stream in Appalachian Ohio. *Water, Air, & Soil Pollution*, 144: 195-222.

BOOKS, BOOK CHAPTERS, PATENTS, THESIS, AND DISSERTATION

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1. Fernandez, C.A., D.J. Heldebrant, A. Bonneville, H.B. Jung, **K.C. Carroll** (2018) Electrophilic acid gas-reactive fluid, proppant, and process for enhanced fracturing and recovery of energy producing materials. US Patent 9,873,828.
 2. Yeh, Tian-Chyi J., Raz Khaleel, and **K.C. Carroll** (2015) FLOW THROUGH HETEROGENEOUS GEOLOGICAL MEDIA, *Cambridge University Press*. ISBN: 9781107076136
 3. Fernandez, Carlos A., David J. Heldebrant, Alain Bonneville, Hun Bok Jung, and **Kenneth C. Carroll** (2015) Electrophilic acid gas-reactive fluid, proppant, and process for enhanced fracturing and recovery of energy producing materials. U.S. Patent Application # 14/477,770, Publication # US20150060068 A1, Filed September 4, 2014.
 4. **Carroll, K.C.** (2007) Characterization, Dissolution, and Enhanced Solubilization of Multicomponent Nonaqueous Phase Liquid in Porous Media. *Ph.D. Dissertation, Hydrology and Water Resources Department, UA*.
 5. **Carroll, K.C.** (1996) The Transport and Fate of Acid Mine Drainage Along the Snowfork Flowpath in the Monday Creek Watershed, Southeastern Ohio. *M.S. Thesis, Geological Sciences Department, OU*.

REFEREED CONFERENCE PROCEEDINGS PUBLICATIONS

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1. Jung, H.B., H. Shao, D.J. Heldebrant, S. Niraj, T. Varga, D. Hoyt, S. Kabilan, L. Zhong, A. Bonneville, W. Um, **K.C. Carroll**, J. Holladay, and C.A. Fernandez (2015) Stimuli-Responsive/Rheoreversible Hydraulic Fracturing Fluids for Enhanced Geothermal Systems. *Proceedings World Geothermal Congress 2015, Melbourne, Australia, 19-25 April 2015*.
 2. Truex, M.J., M. Oostrom, **K.C. Carroll**, A.L. Bunn, D.M. Wellman (2013) Integrated Systems-Based Approach to Monitoring Environmental Remediation. *Proceedings of the 15th International Conference on Environmental Remediation and Radioactive Waste Management, ICEM15, September 8-12, 2013, Brussels, Belgium*.
 3. Truex, M.J., M. Oostrom, **K.C. Carroll**, A.L. Bunn, D.M. Wellman (2013) Integrated Systems-Based Approach to Monitoring Environmental Remediation. *WM Symposia 2013, Conference Proceedings, Phoenix, AZ, February, 24-28*.
 4. Truex, M., **K.C. Carroll**, M. Oostrom (2012) Assessing Soil Vapor Extraction Remediation Performance and Closure: A Review. *WM2012, Conference Proceedings, Phoenix, AZ, March 1*.
 5. Waugh, J., D.E. Miller, E.P. Glenn, D. Moore, **K.C. Carroll**, and R.P. Bush (2010) Natural and Enhanced Attenuation of Soil and Groundwater at the Monument Valley, Arizona, DOE Legacy Waste Site. *WM2010, Conference Proceedings, Phoenix, AZ, March 7-10*.
 6. Johnson, B., and **K.C. Carroll** (2007) Waste Rock Backfill of Open Pits: Design, Optimization, and Modeling Considerations. In *Mine Closure 2007, Conference Proceedings, Santiago, Chile, October 16-19*.
 7. López, D.L., B. Overly, E.I. Robbins, and **K.C. Carroll** (1999) The Role of Flow Regime on the Chemical Evolution of Acidic Waters Discharged from an Abandoned Underground Coal Mine. In *Sudbury 99 Mining and the Environment II, Conference Proceedings, Sudbury, Ontario, Canada, Sept. 12-16, 1, pp. 89-98*.

SELECTED REFEREED TECHNICAL REPORTS

1. Kubicki*, C., **K.C. Carroll**, J.C. Witcher, and A. Robertson (2020) An Integrated Geochemical Approach for Defining Sources of Groundwater Salinity in the Southern Rio Grande Valley of the Mesilla Basin, New Mexico and West Texas, USA. WRRRI Technical Completion Report.
2. **Carroll, K.C.**, M.L. Brusseau, T.B. Boving, and R. Ball (2018) Facilitated-Transport Enabled In-Situ Chemical Oxidation of 1,4-Dioxane-Contaminated Groundwater. Final Report SERDP Project Number: ER-2302.
3. **Carroll, K.C.**, S. Brooks, D. Rucker, and A. Ulery (2018) Coupling Direct and Indirect Characterization Methods for Mercury Transport and Surface Water-Hyporheic Zone Exchange. Project Report Prepared for DOE-EM.
4. **Carroll, K.C.**, J. Williams, and C. Kubicki* (2017) Isotopic and geochemical characterization data for deep and shallow groundwater in the Mesilla Basin, New Mexico. *New Mexico Water Resource Research Institute*, Prepared for New Mexico Statewide Water Assessment, Las Cruces, NM.
5. Chaudhary[§], B.K., **K.C. Carroll**, and S.E. Willman* (2016) Spatial Variability and Geochemistry of Produced Water in Southeastern New Mexico, USA. *New Mexico Water Resource Research Institute*, Prepared for New Mexico Environment Division, Las Cruces, NM.
6. **Carroll, K.C.**, and Spencer E. Willman* (2015) Assessment of Spatiotemporal Groundwater Level Changes Throughout New Mexico. *New Mexico Water Resource Research Institute*, Prepared for New Mexico Statewide Water Assessment, Las Cruces, NM.
7. Johnson, C.D., M.J. Truex, **K.C. Carroll**, M. Oostrom, and A.K. Rice (2014) Vapor Intrusion Estimation Tool For Unsaturated-Zone Contaminant Sources. PNNL-23381, *Pacific Northwest National Laboratory*, Richland, WA.
8. New Mexico First and Research Committee (2014) A Town Hall on Water Planning, Development, & Use: Background Report. Albuquerque, NM, nmfirst.org.
9. Truex, M.J., **K.C. Carroll**, and M. Oostrom (2013) Perched Water Evaluation for the Deep Vadose Zone Beneath the B, BX, and BY Tank Farms Area of the Hanford Site. *Pacific Northwest National Laboratory*, Prepared for the U.S. Department of Energy under Contract DE AC05 76RL01830, PNNL-22499.
10. Truex, M.J. and **K.C. Carroll** (2013) Remedy Evaluation Framework for Inorganic, Non-Volatile Contaminants in the Deep Vadose Zone. *Pacific Northwest National Laboratory*, Prepared for the U.S. Department of Energy under Contract DE AC05 76RL01830, PNNL-21815.
11. Truex, M.J., **K.C. Carroll**, V.J. Rohay, R. Mackley, and K. Parker (2012) Treatability Test Report: Characterization of Vadose Zone Carbon Tetrachloride Source Strength Using Tomographic Methods at the 216-Z-9 Site. *Pacific Northwest National Laboratory*, Prepared for the U.S. Department of Energy under Contract DE AC05 76RL01830, PNNL-21326.
12. Brusseau, M.L., **K.C. Carroll**, and M.J. Truex (2011) Demonstration Plan: Use of Mass-Flux Measurement and Vapor Phase Tomography to Quantify Vadose-Zone Source Strength and Distribution. *Prepared for ESTCP (60087)*, 11 EB-ER1-049.
13. Truex, M.J., M. Oostrom, Z.F. Zhang, **K.C. Carroll**, J.A. Schramke, T.W. Wietsma, G.D. Tartakovsky, and K.A. Gordon (2011) Evaluation of Soil Flushing for Application to the Deep Vadose Zone in the Hanford Central Plateau. *Pacific Northwest National Laboratory*, Prepared for the U.S. Department of Energy under Contract DE AC05 76RL01830, PNNL-19938.
14. Brusseau, M.L., Z. Miao, **K.C. Carroll**, and A. Borden (2010) Monitoring and Remediation of Sulfate in Groundwater. *University of Arizona School of Earth and Environmental Sciences*, Prepared for

- Schlumberger Corp. and University of Arizona Water and Environmental Sustainability Program, Sept. 2010.
15. DOE (2010) Treatability Test Plan for Characterization of Vadose Zone Carbon Tetrachloride Source Strength Using Tomographic Methods at the 216-Z-9 Site. *Prepared for the U.S. Department of Energy Assistant Secretary for Environmental Management, DOE/RL-201 0-79 Revision 0, Sept. 2010.*
 16. **Carroll, K.C.**, and M. L. Brusseau (2009) The Impact of DNAPL Source-Zone Architecture on Contaminant Mass Flux and Plume Evolution in Heterogeneous Porous Media. *SERDP Interim Progress Report, Feb. 25, 2009.*
 17. **Carroll, K.C.**, F.L. Jordan, E.P. Glenn, J. Waugh, and M.L. Brusseau (2009) Conceptual Model of the Nitrate Plume at the Uranium Mill Tailing Site in Monument Valley, Arizona. *Final Report U.S. Department of Energy, Grand Junction Office, Colorado, Jan. 20, 2009.*
 18. **Carroll, K.C.**, F.L. Jordan, E.P. Glenn, J. Waugh, and M.L. Brusseau (2008) Characterizing Natural Attenuation of the Nitrate Plume at the Uranium Mill Tailing Site in Monument Valley, Arizona. *Final Report U.S. Department of Energy, Grand Junction Office, Colorado, Jan. 30, 2008.*

INVITED PRESENTATIONS

1. **Carroll, K.C.** (2021) Multidisciplinary Hydrology: A Few Examples of Scientific Mixology. *The University of Arizona Hydrology and Atmospheric Sciences Department Seminar, September 23.*
2. **Carroll, K.C.** (2020) Multidisciplinary Groundwater Hydrology and Sustainability at the Nexus of Food, Energy, & Water. The Science Cafe, Las Cruces Museum of Nature and Science, March 3.
3. **Carroll, K.C.** (2019) Subsurface Contaminant Source Attribution and Remediation Evaluation. *Department of Water Resources & Civil Engineering Nanjing University, May 17.*
4. **Carroll, K.C.** (2019) Multidisciplinary Groundwater Hydrology and Sustainability at the Nexus of Food, Energy, & Water. *College of Water Resources & Civil Engineering China Agricultural University, May 11.*
5. **Carroll, K.C.** (2019) Understanding Water Quality Variability in the Mesilla Bolson Transboundary Aquifer. *Two Nations One Water, US-Mexico Border Water Summit, April 19.*
6. **Carroll, K.C.** (2019) Multidisciplinary Groundwater Hydrology and Sustainability at the Nexus of Food, Energy & Water. *Arizona State University Environmental Engineering Department Seminar, February 13.*
7. **Carroll, K.C.** (2018) Flexible Fluids in Geology: Switchable Fluids for Hydraulic Fracturing in Geothermal Systems and Enhanced In-situ Contaminant Treatment. Department of Geoscience University of Nevada, Las Vegas, Seminar, April 18.
8. **Carroll, K.C.** (2018) Flexible Fluids in Geology: Switchable Fluids for Hydraulic Fracturing in Geothermal Systems and Enhanced In-situ Contaminant Treatment. UT San Antonio Department of Geological Sciences Seminar, April 16.
9. **Carroll, K.C.** (2017) Reactors in the Rocks: A Couple of Chemical Engineering Applications in the Subsurface. New Mexico State University Chemical Engineering Department Seminar, September 1.
10. **Carroll, K.C.** (2017) Brackish Water Panel Discussion and Presentation on Potential Impacts. *NM WRRRI's 62nd Annual New Mexico Water Conference, Hidden Realities of New Water Opportunities, Aug. 15-16, Socorro, NM.*
11. **Carroll, K.C.** (2017) Water & Energy at the Nexus of Hydrology & Environmental Engineering. *Arizona State University Environmental Engineering Department Seminar, March 1.*
12. **Carroll, K.C.** (2017) Subsurface Contaminant In-Situ Chemical Oxidation: Coupling of Hydrogeology and Geochemistry. *San Diego State University Geology Department Seminar, Jan. 19.*

13. **Carroll, K.C.** (2016) Flexible Subsurface Science: Pore-Scale Imaging of Two & Three-Phase Immiscible-Fluid Transitions and Switchable Fluids for Hydraulic Fracturing in Geothermal Systems. Plant & Environmental Science Dept. Seminar at NMSU, May 6.
14. **Carroll, K.C.** (2016) Flexible Subsurface Science: Pore-Scale Imaging of Two & Three-Phase Immiscible-Fluid Transitions and Switchable Fluids for Hydraulic Fracturing in Geothermal Systems. Dept. of Geoscience Seminar at NMSU, March 30.
15. **Carroll, K.C.**, S.E. Willman*, A.G. Fernald, and S.J. Archambault (2015) Spatiotemporal Groundwater-Level Change for the Evaluation of Groundwater Use and Dynamics. *American Geophysical Union Fall Meeting, Fall Meet. Suppl.*, Abstract H31O-04.
16. **Carroll, K.C.** (2015) What is in your water? Environmental Science and Engineering Grand Challenges. The New Mexico Alliance for Minority Participation (NM AMP) 2015 Student Research Conference, Las Cruces Convention Center, October 2.
17. **Carroll, K.C.** (2015) Flexible Subsurface Science: Pore-Scale Imaging of Two & Three-Phase Immiscible-Fluid Transitions and Switchable Fluids for Hydraulic Fracturing in Geothermal Systems. The EES/IGPP Frontiers of Geoscience Colloquium at Los Alamos National Laboratory, May 18.
18. **Carroll, K.C.** (2014) Restoring and Preserving Our Water Resources for Future Generations. The Science Cafe, Las Cruces Museum of Nature and Science, Dec. 4.
19. **Carroll, K.C.** (2014) Subsurface Contaminant Source Attribution and Remediation Evaluation. Geological Sciences Department Seminar, Univ. of Texas El Paso, Nov. 20.
20. **Carroll, K.C.** and P. Xu (2014) Quantifying Potential Environmental Impacts and Water Treatment Requirements for Wastewater Produced in Oil & Gas Operations. Congresswoman Michelle Lujan Grisham's Water Innovation Summit Tackling Our Water Resource Challenges by Utilizing Cutting-Edge Technologies and Innovation, Oct. 14, University of New Mexico, Albuquerque, NM.
21. Ostrom, M., M. Truex, **K.C. Carroll**, A.K. Rice, D. Becker, and M.A. Simon (2013) A Framework for Estimating Groundwater Concentrations of VOCs Emanating from a Vadose Zone Source. *American Geophysical Union Fall Meeting, Fall Meet. Suppl.*, Abstract H34D-05.
22. Scheibe, T.D., E.M. Murphy, C. Xingyuan, A. Rice, **K.C. Carroll**, B.J. Palmer, A.M. Tartakovsky, I. Battiato, and B.D. Wood (2013) Multiscale Hydrogeologic Modeling with Emphasis on Hybrid Multiscale Methods. *American Geophysical Union Fall Meeting, Fall Meet. Suppl.*, Abstract H24A-05.
23. **Carroll, K.C.** (2013) Mass-Flux Source Attribution and Application to Subsurface Contaminant Remediation Evaluation. *Earth and Environmental Science Department Seminar, New Mexico Tech*, March 3.
24. **Carroll, K.C.** (2013) Mass-Flux Source Attribution and Application to Subsurface Contaminant Remediation Evaluation. *Earth & Planetary Sciences Department Seminar, University of New Mexico*, Jan. 31.
25. **Carroll, K.C.** (2013) Mass-Flux Source Attribution and Application to Subsurface Contaminant Remediation Evaluation. *Plant & Environmental Sciences Department Seminar, NMSU*, Aug. 30.
26. **Carroll, K.C.** (2013) Mass-Flux Source Attribution and Application to Subsurface Contaminant Remediation Evaluation. *School of Mathematical and Natural Sciences at Arizona State University*, Phoenix, AZ, Aug. 29.
27. **Carroll, K.C.** (2012) Recent Developments for Groundwater Remediation Using In Situ Chemical Oxidation (ISCO). *Tucson International Airport Area Superfund Site Annual Technical Exchange Meeting, Tucson, AZ*, October, 15.

28. **Carroll, K.C.** (2012) Subsurface Mass-Flux Investigations of Coupled Flow and Transport, Source Attribution, and Contaminant-Remediation Evaluation. *Geological Sciences Department at University of Alabama*, Tuscaloosa, AL, Jan. 18.
29. **Carroll, K.C.**, M. Truex, M. Oostrom, M.L. Brusseau, and V.J. Rohay (2011) Remediation Quantification and Endpoint Analysis Framework for Soil Vapor Extraction. *PNNL Scientist and Engineer Development Program: 2012 Poster Presentation Session*, May 11, Richland, WA.
30. McCray, J.E., G.R. Tick, **K.C. Carroll**, T.B. Boving, G.R. Johnson, M.L. Brusseau (2011) Future directions for the remediation of sites contaminated by Nonaqueous Phase Liquids. Invited Presentation: *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H31H-01.
31. Matthieu, D.E., **K.C. Carroll**, M. Plaschke, and M.L. Brusseau (2010) Field-Scale Characterization of a Chlorinated Solvent Superfund Site in Tucson, Arizona. *WSP Water Forum 2010: Our Water Future*, November 22, Tucson, AZ.
32. **Carroll, K.C.** (2009) Multi-Scale Investigation Approaches with Relevance to Enhanced Oil Recovery and Hydrology Problems. *Exxon Mobil Upstream Research Corp.*, Houston, TX, Nov. 24.
33. **Carroll, K.C.** (2009) Multicomponent NAPL Dissolution, Source-Zone Architecture, and Mass Flux Impacts on Groundwater Remediation. *Geological Engineering Department at Montana Tech*, Butte, MT, April 29.
34. **Carroll, K.C.** (2009) The Multicomponent NAPL Problem: To Remediate or Not to Remediate? That is the Question. *Geological Sciences Department at California State University*, Los Angeles, CA, Feb. 26.
35. **Carroll, K.C.** (2009) The Multicomponent NAPL Problem: To Remediate or Not to Remediate? That is the Question. *Evergreen State College*, Olympia, WA, Jan. 27.
36. **Carroll, K.C.** (2008) Characterization and Remediation of Multicomponent Nonaqueous Phase Liquids in Porous Media. *U.S. Geological Survey*, Reston, VA, Dec. 5.
37. **Carroll, K.C.** (2005) Waste Rock Backfill of Open Pits: Design, Optimization, and Modeling Considerations. *Proseminar/Graduate Seminar, Department of Mining and Geologic Engineering, UA*, Sept. 30.

PUBLISHED ABSTRACTS AND CONFERENCE PRESENTATIONS

1. Johnson, C., C. Stice*, **K.C. Carroll**, J. Szecsody, and C.-H. Tsai[§] (2022) Organic Gas Injection Delivery Behavior for Vadose Zone Remediation. *Waste Management Symposium (WM2022)*, March 6-10, Phoenix, AZ.
2. Wu, L., J.D. Gomez-Velez, and **K.C. Carroll** (2021) Hyporheic exchange under seasonally connected groundwater surface-water systems. *American Geophysical Union Fall Meeting*, Fall Meeting Abstract.
3. Noyes, C., **K.C. Carroll**, R. Purtschert, G. Ferguson, J.C. McIntosh (2021) Using Argon-39, Noble Gases, and other Environmental Tracers to Infer Changes in Recharge to the Semi-Arid Tucson Basin over the Holocene. *American Geophysical Union Fall Meeting*, Fall Meeting Abstract.
4. Stice*, C., C.-H. Tsai[§], C. Johnson, and **K.C. Carroll** (2021) Numerical Modeling of Gas Flow in the Hanford Vadose Zone. *American Geophysical Union Fall Meeting*, Fall Meeting Abstract.
5. Tsai[§], C.-H., **K.C. Carroll**, D.F. Rucker, S.C. Brooks, and T. Ginn (2021) Coupled Stream-Groundwater Flow and Transport Modeling of Streambed Heterogeneity Impacts on Hyporheic Exchange. *ASA, CSSA, and SSSA International Annual Meeting*, Nov. 7-10, Salt Lake City, UT.
6. Mohamed[§], R.A.M., M. Hitzelberger*, **K.C. Carroll**, M.L. Brusseau (2021) Characterization of One and Two Dimensional Transport of Perfluorooctane Sulfonic Acid in Homogeneous and

- Heterogeneous Sands. *ASA, CSSA, and SSSA International Annual Meeting*, Nov. 7-10, Salt Lake City, UT.
7. Rucker, D.F., **K.C. Carroll**, C.-H. Tsai*, and A. Pearson* (2021) Observing Streambed Infiltration Heterogeneity of an Intermittent River at the Onset of Flow with Electrical Resistivity and Buried Sensors. *Annual Symposium – Arizona Hydrological Society*, Phoenix, September 15–17.
 8. McIntosh, J.C., K. Markovich, C. Noyes, L. Condon, G. Ferguson, **K.C. Carroll**, R. Purtschert (2021) Application of ^3H , ^{85}Kr , ^{39}Ar , and ^{14}C , noble gas thermometry, and modeling to constrain mountain-front recharge to basin-fill aquifers. *Goldschmidt*, Lyon, July 4-9.
 9. Ginn, T., M. Aghababaei, **K.C. Carroll**, R. Gonzalez-Pinzon, A. Tartakovsky (2021) The Remarkable Generality of the Transient Storage Model with Residence Time Dependence: Temporal Moments. *European Geophysical Union General Assembly*, April 19-30.
 10. Mohamed[§], R.A.M., S.C. Brooks, C-H Tsai*, T. Ahmed*, D.F. Rucker, A.L. Ulery, E.M. Pierce, and **K.C. Carroll** (2021) Use of Censored Data for Improving the Geostatistical Interpolation of Streambed Attributes. *Waste Management Symposium (WM2021)*, March 8-12.
 11. Tsai*, C.-H., S.C. Brooks, and **K.C. Carroll** (2020) Method Comparison for Hyporheic Zone Transport Model Parameter Estimation using Tracer Tests Conducted in East Fork Poplar Creek, Tennessee, USA. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 12. Polharel, B., H. Cao, W. Jiang, **K.C. Carroll**, Y. Zhang, P. Xu (2020) Quantitative analysis of produced water in Permian Basin-New Mexico using machine learning techniques. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 13. Ahmed*, T., S.C. Brooks, D. VanLeeuwen, R.A.M. Mohamed[§], C.-H. Tsai*, and **K.C. Carroll** (2020) Statistical Characterization of Hyporheic Zone Properties Over Three Years. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 14. Khan[§], N.A., P. Xu, J.M. Jarvis, and **K.C. Carroll** (2020) Comparison of organic and inorganic chemical analysis for characterization of produced water from oil production in the Permian Basin. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 15. Condon, L.E., K.H. Markovich, G. Rapp, **K.C. Carroll**, R. Purtschert, and J.C. McIntosh (2020) Combining environmental tracers and numerical modeling to estimate mountain-front recharge components in the Tucson Basin. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 16. Mohamed[§], R.A.M., C. Gabrielli, T. Ahmed*, J. Selker, F. Selker, S.C. Brooks, and **K.C. Carroll** (2020) Comparison of Fiber-Optic Distributed Temperature Sensing and Mobile High-Sensitivity Temperature Probes for Stream and Hyporheic Zone Characterization. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 17. Emin, A., A.E. Ouni, H. Zhong, **K.C. Carroll**, and M.L. Brusseau (2020) Uranium Biosequestration and Biosequestered Uranium Re-oxidation Multicomponent Transport Modeling. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 18. Pearson*, A., D. Rucker, C.-H. Tsai*, E.H. Fuchs, and **K.C. Carroll** (2020) Electrical Resistivity Mapping of Rio Grande River-Groundwater Interactions. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 19. Ahmed*, T., S.C. Brooks, D. VanLeeuwen, R.A.M. Mohamed[§], C.-H. Tsai*, and **K.C. Carroll**, and (2020) Characterization of Streambed Geochemical and Hydraulic Properties in the Hyporheic Zone over Time. *ASA, CSSA, and SSSA International Annual Meeting*, Nov. 8-11, Phoenix, AZ.
 20. Mohamed[§], R.A.M., T. Ahmed*, C.-H. Tsai*, **K.C. Carroll**, and S.C. Brooks (2020) The Effect of Using Left Censored Data on Improving the Geostatistical Distribution of Streambed Attributes. *ASA, CSSA, and SSSA International Annual Meeting*, Nov. 8-11, Phoenix, AZ.

21. Pearson*, A., D. Rucker, C.-H. Tsai*, E.H. Fuchs, and **K.C. Carroll** (2020) Electrical Resistivity Mapping of Rio Grande River-Groundwater Interactions. *65th Annual New Mexico Water Conference*, October 27 - 29, 2020.
22. **Carroll, K.C.**, P. Xu, M. Hightower (2020) NM Produced Water Research Consortium. *Permian Basin Water Management Council*, Midland, TX, Feb. 26.
23. **Carroll, K.C.**, C. Kubicki*, J. Witcher, A. Robertson, and R. Purtschert, (2019) Integrating Mineral and Groundwater Isotopic and Geochemical Analysis for Attribution of Salinity Sources and Aquifer Flow-Path Architecture in the Mesilla Basin, USA. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
24. Huang, D., N.A. Khan[§], G. Wang, **K.C. Carroll**, and M.L. Brusseau (2019) The Co-transport of PFAS and Cr(VI) in Porous Media. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
25. Wang, Y., N.A. Khan[§], N. Yan, **K.C. Carroll**, and M.L. Brusseau (2019) Nonideal Transport and Extended Elution Tailing of PFOS in Soil and Aquifer Sediment. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
26. Markovich, K.H., L.E. Condon, C. Kubicki*, **K.C. Carroll**, and J.C. McIntosh (2019) Disentangling age distributions of long-screened production wells for quantifying mountain-block recharge. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
27. Khan[§], N.A., C.-H. Tsai*, L. Zhong, J.E. Szecsody, V.L. Freedman, and **K.C. Carroll** (2019) Evaluating Tracer Estimation of Sorption for Characterization of Solute Attenuation of Subsurface Contaminant Mixtures Relevant to the Hanford Site. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
28. Tsai*, C.-H., S. Brooks, and **K.C. Carroll** (2019) Modeling the Impacts of Hyporheic Zone Heterogeneity on Mass Exchange and Solute Transport in East Fork Poplar Creek, Tennessee, USA. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
29. Fuchs*, E.H., **K.C. Carroll**, and J.P. King (2019) Quantifying Recharge impacted by In-Stream Sedimentation and Disconnection of Surface Water from Groundwater. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
30. Markovich, K.H., L.E. Condon, C. Kubicki*, **K.C. Carroll**, and J.C. McIntosh (2019) A multi-tracer approach for characterizing mountain-block recharge: Case study of the Tucson basin in southeastern Arizona. *GSA Annual Meeting*, Phoenix, Arizona.
31. Ulery, A., A. Smith Muise, B. Chamberlin, J. Gleason, and **K.C. Carroll** (2019) Impact of Digital Teaching Tools in Science Classes. *SSSA International Soils Meeting*, San Diego, CA, Jan. 6-9.
32. Tick, G.R., Milavec*, J., F.O. Holguin, B. Dungan, and **K.C. Carroll** (2018) 1,4-Dioxane Cosolvency Impacts on Trichloroethylene Dissolution and Sorption. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
33. Tsai*, C.-H., S. Brooks, D. Rucker, A. Ulery, and **K.C. Carroll** (2018) Tracer Characterization of Baseflow Hyporheic Zone Exchange, Solute Transport, and Rate-Limited Mass Transfer in East Fork Poplar Creek, Tennessee, USA. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
34. Mohamed[§], R.A.M., C.-H. Tsai*, S. Brooks, D. Rucker, A. Ulery, and **K.C. Carroll** (2018) Effect of Stream Channel Anisotropy on the Spatial Interpolation of Streambed Characterization Data. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
35. Khan*, N.A., and **K.C. Carroll** (2018) Transport of Aqueous Ozone in Saturated Porous Media with Oxidant Attenuation and Demand Assessment for In Situ Contaminant Oxidation. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.

36. **Carroll, K.C.**, Bridges*, L., M.L. Brusseau, R.A.M. Mohamed[§], and C. Papelis (2018) Persulfate Activation and Enhanced Degradation of 1,4-Dioxane in Water Using Manganese Amendment for In Situ Chemical Oxidation. *American Geophysical Union Fall Meeting, Fall Meet. Abstract.*
37. Kubicki*, C., J. Witcher, A. Robertson, R. Purtschert, and **K.C. Carroll** (2018) Spatial variability in the sources of groundwater salinity in the Rio Grande Valley of the Mesilla Basin, New Mexico and West Texas, USA. *American Geophysical Union Fall Meeting, Fall Meet. Abstract.*
38. Brusseau, M.L., N. Yan, W. Chen, Y. Lyu, S. Van Glubt, **K.C. Carroll**, and F.O. Holguin (2018) Comprehensive Retention Model for PFAS Transport in Subsurface Systems. *American Geophysical Union Fall Meeting, Fall Meet. Abstract.*
39. Fuchs*, E.H., **K.C. Carroll**, and J.P. King (2018) Quantifying Disconnection of Surface Water from Groundwater for Irrigated Agriculture in a Constrained Aquifer System. *American Geophysical Union Fall Meeting, Fall Meet. Abstract.*
40. Mohamed[§], R.A.M., C.-H. Tsai*, S. Brooks, D. Rucker, A. Ulery, and **K.C. Carroll** (2018) Analysis of Various Geostatistical Methods to Interpolate Streambed Characterization Parameters of East Fork Poplar Creek in Oak Ridge, Tennessee. *63rd Annual New Mexico Water Conference: At the Tipping Point: Water Scarcity, Science and Policy, October 17-18, Las Cruces, NM.*
41. Ahmed*, T., S. Brooks, R.A.M. Mohamed[§], C.-H. Tsai*, and **K.C. Carroll** (2018) Statistical Variability of Streambed Geochemical and Hydrologic Properties in the Hyporheic Zone of the East Fork Poplar Creek, Tennessee. *63rd Annual New Mexico Water Conference: At the Tipping Point: Water Scarcity, Science and Policy, October 17-18, Las Cruces, NM.*
42. Khan*, N.A., and **K.C. Carroll** (2018) Transport of Aqueous Ozone in Saturated Porous Media with Oxidant Attenuation and Demand Assessment for In Situ Contaminant Oxidation. *63rd Annual New Mexico Water Conference: At the Tipping Point: Water Scarcity, Science and Policy, October 17-18, Las Cruces, NM.*
43. Kubicki*, C., J. Witcher, A. Robertson, R. Purtschert, and **K.C. Carroll** (2018) Spatial variability in the sources of groundwater salinity in the Rio Grande Valley of the Mesilla Basin, New Mexico and West Texas, USA. *63rd Annual New Mexico Water Conference: At the Tipping Point: Water Scarcity, Science and Policy, October 17-18, Las Cruces, NM.*
44. Ulery, A., A. Smith Muise, B. Chamberlin, J. Gleason, and **K.C. Carroll** (2018) How to improve classroom evaluation of learning tools. *NACTA Journal (#0202), Ames, IA, June 12-15.*
45. Rucker, D., C.-H. Tsai*, and **K.C. Carroll** (2018) Electrical Resistivity and Induced Polarization Tomography Characterization of Hyporheic Zone Exchange Impacting Mercury Transport in East Fork Poplar Creek, Tennessee. *Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP), March 25-29, Nashville, Tennessee.*
46. Robertson, A., **K.C. Carroll**, C. Kubicki*, and R. Purtschert (2018) Geochemical and isotopic investigation of deep groundwater in the Mesilla Basin, New Mexico. *NGWA Conference, Albuquerque, NM.*
47. Mateas, D.J., G.R. Tick, and **K.C. Carroll** (2018) In Situ Stabilization of NAPL Contaminant Source-Zones as a Remediation Technique to Reduce Mass Flux to Groundwater. *Battelle Conference, Eleventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds; Palm Springs, California.*
48. Greenberg, R.R., G.R. Tick, J.B. Abbott, and **K.C. Carroll** (2017) Mass Transfer Behavior of Perfluorinated Chemicals in Saturated Clay-rich Sands: A Laboratory-based Study on Fate and

- Transport in Groundwater and Sediments. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
49. Abbott, J.B., G.R. Tick, G.R. Greenberg, and **K.C. Carroll** (2017) Quantifying Mass Transfer Processes in Groundwater as a Function of Molecular Structure Variation for Multicomponent NAPL Sources. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 50. Chen, W., N. Yan, X. Fu, **K.C. Carroll**, F.O. Holguin, and M.L. Brusseau (2017) Adsorption and Retardation of PFASs in Soil. *American Geophysical Union Fall Meeting*, Fall Meet. Abstract.
 51. **Carroll, K.C.**, and H. Chen[§] (2017) Metal-Free Catalysis of Persulfate Activation and Organic-Pollutant Degradation by Nitrogen-Doped Graphene and Aminated Graphene. *SERDP and ESTCP Symposium 2017*, Nov. 28-30, Washington, DC.
 52. Brusseau, M.L., Z. Guo, **K.C. Carroll** (2017) Methods for Characterizing Mass Transfer, Attenuation, and Mass Removal in Support of Remedial Action Design, Operation, and Performance Evaluation. *SERDP and ESTCP Symposium 2017*, Nov. 28-30, Washington, DC.
 53. Khan*, N.A., M.D. Johnson, F.O. Holguin, B. Dungan, and **K.C. Carroll** (2017) Advanced oxidation of 1,4-dioxane and co-contaminants by aqueous ozone with and without a stabilization agent. *SERDP and ESTCP Symposium 2017*, Nov. 28-30, Washington, DC.
 54. Ulery, A.L., L. White, **K.C. Carroll**, J. Gleason, and B. Chamberlin (2017) Interactive Computer Tools to Clarify the Role of Nitrogen in Agriculture and the Environment. *ASA-CSSA-SSSA Meeting*, Oct. 22-25, Tampa, FL.
 55. **Carroll, K.C.**, and H. Chen[§] (2017) Nitrogen-Doped Graphene and Aminated Graphene Catalysis of Persulfate Activation and Emerging Contaminant Degradation in Wastewater. *NM WRRRI's 62nd Annual New Mexico Water Conference*, Hidden Realities of New Water Opportunities, Aug. 15-16, Socorro, NM.
 56. Kubicki*, C., J. Williams, R. Purtschert, **K.C. Carroll** (2017) Isotopic and geochemical groundwater characterization in the Mesilla Basin, New Mexico. *NM WRRRI's 62nd Annual New Mexico Water Conference*, Hidden Realities of New Water Opportunities, Aug. 15-16, Socorro, NM.
 57. Hennessey, J.R., and **K.C. Carroll** (2017) Using Contaminant Mass Discharge and Attenuation Rate Analysis to Develop Pump-and-Treat Remediation System Closure Criteria for Transition to Monitored Natural Attenuation. *NM WRRRI's 62nd Annual New Mexico Water Conference*, Hidden Realities of New Water Opportunities, Aug. 15-16, Socorro, NM.
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 62. Ulery, A.L., L.M. White, **K.C. Carroll**, J.B. Gleason, and B.A. Chamberlin (2017) Facilitating Student Success in Gateway Courses with Animated Tools. *NACTA annual meeting*, Purdue, IN, June 29, 2017.

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65. Mateas, D.J., G.R. Tick, and **K.C. Carroll** (2016) In Situ NAPL Modification for Contaminant Source-Zone Passivation, Mass Flux Reduction, and Remediation. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H33A-1504.
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70. **Carroll, K.C.**, and H. Chen[§] (2016) Metal-Free Catalysis of Persulfate Activation and Organic-Pollutant Degradation by Nitrogen-Doped Graphene and Aminated Graphene. *ASA-CSSA-SSSA Meeting*, Phoenix, AZ, Nov. 6-9.
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76. Willman*, S.E. and **K.C. Carroll** (2015) Assessment of Spatiotemporal Groundwater Level Changes Throughout New Mexico. *Water Smart Innovations 2015 Conference*, Las Vegas, Nevada, October 6-9.
77. Cruz*, S., **K.C. Carroll**, and M.D. Sosa (2015) Implementation of Drip Irrigation System Facilitates Collaboration Between Future Agricultural Leaders. *NM WRRI's 60th Annual New Mexico Water Conference*, Coloring Outside the Lines: Can Science Help Us Be Creative and Innovative in Managing Our Water, Taos, NM, October 7-9.
78. Chen[§], H. and **K.C. Carroll** (2015) Sulfamethoxazole Treatment by Advanced Oxidation Process with Graphene Oxide. *The Association of Environmental Engineering & Science Professors (AEESP) 2015 Conference*, Yale University, June 13-16.

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98. Truex, M., **K.C. Carroll**, M. Oostrom, A. Rice, C. Johnson, and D. Becker (2013) Performance Evaluation and Selection of Shutdown Criteria for Soil Vapor Extraction. *REMTEC Conference*, CO, March 5.
99. **Carroll, K.C.**, M. Truex, M.L. Brusseau, K. Parker, R. Mackley, and V.J. Rohay (2012) Characterization of Persistent Volatile Contaminant Sources in the Vadose Zone. *American Geophysical Union Fall Meeting, Fall Meet. Suppl.*, Abstract H43E-1413.
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103. Nguyen, B.N., **K.C. Carroll**, C.J. Murray, M.I. McKinley, M.C. Richmond (2012) Effects of Fault Width and Inclination on Fault Reactivation Induced by Underground Injection of CO₂. *11th Annual Conference on Carbon Capture Utilization & Sequestration*, Pittsburgh, PA, April 30.
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- Remediation of Sulfate-Contaminated Groundwater at a Mining Site. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H21A-1046.
106. Morrison, C., J. Mainhagu, M.L. Brusseau, M. Truex, M. Oostrom, **K.C. Carroll** (2011) Characterizing Vapor Fluxes for Organic-Liquid Sources in the Vadose Zone. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H41A-1003.
107. McMillan, A.L., A.K. Borden, M.L. Brusseau, **K.C. Carroll**, N.H. Akyol, J.L. Berkompas, Z. Miao, F. Jordan, G.R. Tick, J. Waugh, E.P. Glenn (2011) Long-term Effects of Ethanol Addition on Denitrification At The Uranium Mill Tailing Site In Monument Valley, Arizona. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H21A-1057.
108. Brusseau, M.L., **K.C. Carroll**, T. Allen, J. Baker, W. DiGuseppi, J. Hatton, C. Morrison, A. Russo, and J. Berkompas (2011) Impact of In Situ Chemical Oxidation on Contaminant Mass Discharge: Linking Source-Zone and Plume-Scale Characterizations of Remediation Performance. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H41A-1015.
109. **Carroll, K.C.**, B.N. Nguyen, M. Richmond, and C. Murray (2011) Coupling of STOMP and ABAQUS for Hydro-Geomechanical Modeling of Fluid Flow and Rock Deformation Associated with CO₂ Injection. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract H51G-1271.
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111. Brusseau, M.L., **K.C. Carroll**, T. Allen, J. Baker, W. DiGuseppi, J. Hatton, C. Morrison, A. Russo, and J. Berkompas (2011) Impact of In Situ Chemical Oxidation on Contaminant Mass Discharge: Linking Source-Zone and Plume-Scale Characterizations of Remediation Performance. *Partners in Environ. Technology Technical Symposium & Workshop*, November 29-December 1, Washington D.C.
112. Oostrom, M., M.J. Truex, **K.C. Carroll**, T.W. Wietsma (2011) Behavior of volatile organic mass flux emanating from persistent vadose zone sources. *American Chemical Society National Meeting*, 08/29/2011, Denver, C).
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116. Borden, A.K., **K.C. Carroll**, N. Hakan Akyol, J. Berkompas, Z. Miao, J. Waugh, E.P. Glenn, and M.L. Brusseau (2010) Pilot Tests of Enhanced Denitrification Using Ethanol. *American Geophysical Union Fall Meeting*, Fall Meet. Suppl., Abstract B51C-0380.
117. Brusseau, M.L., **K.C. Carroll**, and W. DiGuseppi (2010) Assessing the Impact of In-situ Chemical Oxidation on Source-zone Mass Discharge for a Chlorinated-solvent Contaminated Field Site. *Partners in Environ. Technology Technical Symposium & Workshop*, November 30-December 2, Washington D.C.

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119. Marble, J.C., **K.C. Carroll**, H. Janousek, and M.L. Brusseau (2009) In Situ Oxidation and Associated Mass-Flux Reduction/Mass-Removal Behavior for Idealized Source Zones with Poorly-Accessible Organic Immiscible Liquid. *Geological Society of America Abstracts with Programs*, Annual Meeting, Portland, Oct. 18–21.
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129. **Carroll, K.C.**, M.L. Brusseau, Taylor, R., and Gray, E. (2003) Compositional Effects on the Physical Properties and Partitioning Behavior of a Diesel-PCE Nonaqueous Phase Liquid Mixture. *NGWA Southwest FOCUS Conference: Water Supply and Emerging Contaminants*, Phoenix, AZ.
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RESEARCH PRESS RELEASES

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2. Melissa Rutter (2019) NMSU researchers, EBID develop metrics for water-resource management, sustainability, 10/07/2019. <https://newscenter.nmsu.edu//Articles/view/13893/nmsu-researchers-ebid-develop-metrics-for-water-resource-management-sustainability> and <http://pvwuo.blogspot.com/>
3. Melissa Rutter (2019) NMSU receives two grants from DOE to work with national laboratories, June 2, 2019. https://www.lcsun-news.com/story/news/education/nmsu/2019/06/01/nmsu-receives-two-grants-doe-work-national-laboratories/1312634001/?cid=facebook_Las_Cruces_Sun-News&fbclid=IwAR2TCu-7wVjEMorsPVhKjr20DIpf6rzJMZT6adaEnrM0-SO4VmsQ4lP4Iwk
4. Melissa Rutter (2018) NMSU researcher, collaborators prolong water contaminant treatment using ozone, Nov. 20, 2018. <https://www.lcsun-news.com/story/news/local/2018/11/17/research-transforming-ways-people-able-remove-contaminants-both-groundwater-and-waste-water-treatmen/2030360002/>
5. Mallory Falk (2018) As The Rio Grande Dries Up, Experts Look For New Water Sources. KRGW (NPR), Nov. 12, 2018. <https://www.krwg.org/post/rio-grande-dries-experts-look-new-water-sources>
6. Pehr, D.J. (2017) NMSU researchers join others to address water scarcity issues. Las Cruces Sun News, Nov. 18, 2017. <http://www.lcsun-news.com/story/news/education/nmsu/2017/11/18/nmsu-researchers-join-others-address-water-scarcity-issues/877593001/> and/or <https://newscenter.nmsu.edu/articles/view/12837/nmsu-nm-wrri-researchers-join-others-to-help-address-water-scarcity-issues>
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12. Wellman, D.M. et al. (2012) New Approach to Assess Volatile Contamination in Vadose Zone Provides Path Forward for Site Closure. *Nuclear Decommissioning Report*, Vol. 4(2), May 2012, page 4, <http://www.bluetoad.com/publication/?i=111528>.

PROFESSIONAL SOCIETY MEMBERSHIP

- American Geophysical Union
- Geochemical Society
- Geological Society of America
- National Ground Water Association
- Sigma Xi - Scientific Research Society
- Soil Science Society of America
- Universities Council on Water Resources

SELECTED PROFESSIONAL SERVICE

American Geophysical Union (AGU):

- Convener Technical Session - Advances in Isotopic, Trace Element and Noble Gas Tracers of Hydrologic Processes (2020 Fall Meeting, Virtual) and judge for student presentations
- Convener Technical Session - Groundwater-Surface Water Interactions: Integrating Physical, Biological, and Chemical Patterns and Processes Across Systems and Scales (2020 Fall Meeting, Virtual) and judge for student presentations
- Convener Technical Session - H010 - Advances in Isotopic, Trace Element and Noble Gas Tracers of Hydrologic Processes (2019 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session - H077 - Advances, Breakthroughs, and Challenges in Hydrogeologic Sciences (2019 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session - Advances in Characterizing NAPL Sources in Groundwater and Assessing Impacts on Plume-Scale Contamination: Theoretical, Experimental, and Modeling Investigations (2018 Fall Meeting, Wash. DC, Dec.) and judge for student presentations
- Convener Technical Session - Advances, Breakthroughs, and Challenges in Hydrogeologic Sciences (2018 Fall Meeting, Wash. DC, Dec.) and judge for student presentations
- Convener Technical Session - Coupled Dynamics of Physical, Biological, Geomorphic, Hydrologic, and Chemical Processes in the Hyporheic Zone Over a Range of Spatial and Temporal Scales (2018 Fall Meeting, Wash. DC, Dec.) and judge for student presentations
- Convener Technical Session - Advances, Breakthroughs, and Challenges in Hydrogeologic Sciences (2016 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session - Advances and Breakthroughs in Hydrogeology (2015 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session - Recent Advances in Groundwater Hydrology (2014 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations

- Convener Technical Session - Overcoming Remediation Barriers and Improving the Understanding of Processes Controlling Contaminant Transport (2013 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session – Coupled Hydraulic, Geochemical, and Geomechanical Processes in CO₂ Injection and Storage (2013 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session - Physical, Chemical, and Biological Processes Controlling Transport and Remediation of Contaminants (2012 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session – Coupled Hydro-Geochem-Mechanical Evaluations of CO₂ Sequestration (2012 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Convener Technical Session - Advances in the Transport and Remediation of Organic Contaminants (2011 Fall Meeting, San Francisco, CA, Dec.) and judge for student presentations
- Member Groundwater and Vadose-Zone Subcommittees of the Hydrology Section (2010-Present)
- Convener Technical Session H41 - Physical, Chemical, and Biological Processes Controlling NAPL Source Zone Remediation (2008 Fall Meeting, San Francisco, CA, Dec. 15-19) and judge for student presentations
- Webpage Development (<http://agugroundwater.nmsu.edu/index.html>)

Arizona Hydrologic Society:

- Tucson Chapter Treasurer (2003-2006)
- Planning Committee of Annual Symposium (2004)

Multistate Research Projects Supporting NMSU Ag. Experiment Station:

- W3188 Multistate Research Project member “Soil, Water, and Environmental Physics across Scales.”
- W-3170 Multistate Research Project member “Beneficial Reuse of Residuals and Reclaimed Water: Impact on Soil Ecosystem and Human Health”

National Ground Water Association:

- Convener Technical Session - Remediation of Subsurface Contamination in Arid and Semi-Arid Environments: Impact on Water Resource Sustainability, NGWA 2009 Ground Water Summit (April 19-23 in Tucson, AZ)

New Mexico State University:

- ACES College and Plant & Environmental Sciences Department
 - PES Undergraduate Student Recruitment and Retention Committee (2014-2018; Chair, 2017-2018, Chair: 2019-Present)
 - Faculty Search: Assistant/Associate Professor Water for Sustainable Agriculture and Food Systems, ACES College (2019)
 - ACES Strategic Planning Committee (2018-2019)
 - PES Student Assessment Committee (2018-2019)
 - ACES Committee to Develop new Ph.D. program in Natural Resources (2018-2019)
 - NMSU Water Initiative Committee (2017-Present)
 - PES Awards Committee (2017-2018)
 - ACES College Dean’s Faculty Advisory Team (2017-2019)

- PES Doña Ana Community College Liaison for Plant & Environmental Science Dept. 2016-Present
- PES Ad Hoc Committee for Faculty Replacement Recruitment 2014-2016
- Member of the NM State Brackish Water Work Group (2014-2016)
- PES “Environmental Soil Microbiology” Position Search Committee, 2014/2015
- PES Graduate Studies Committee (2013-2017)
- WSM Graduate Program Management Team 2013-Present
- Faculty advisor for WSM Graduate Student Organization 2014-Present
- Supported development of a Joint Center for Hydrology Research with the China Agricultural University (2014-Present), and developed Nanjing University collaboration.
- Initiated and organized a joint invited lecture series with Plant & Environmental Sciences, Civil Engineering, and WSM

Scientific Journal Editorial Board:

- *Journal of Hydrology* (2019-Present)
- *Journal of Hydrology X (Open Access)* (2019-Present)
- *Journal of Contaminant Hydrology* (2015-Present)

Scientific Journal Reviewer (Since 2013):

- *Chemosphere; Environmental Science & Technology; Groundwater; Groundwater Monitoring & Remediation; Journal of Contaminant Hydrology; Journal of Environmental Quality; Journal of Hazardous Materials; Journal of Hydro-environment Research; Journal of Hydrology; Soil Science Society of America Journal; Water; Water, Air, & Soil Pollution; Water Resources Research*

Scientific Research Grant Proposal Reviewer:

- *The Research Partnership to Secure Energy for America, RPSEA* (2014)
- *The American Chemical Society Petroleum Research Fund* (2015)
- *DOE User Facility EMSL Terrestrial & Subsurface Ecosystems Proposals* (2015)
- *NSF Environmental Engineering CAREER Program Proposals* (2015)
- *NIWR-USGS National Competitive Grants Program* (2016)
- *NSF Hydrology CAREER Program Proposals* (2016)
- *NSERC Discovery Grant Proposal, Canada* (2017)
- *NSF Hydrology Program Proposal* (2019)

Sigma Xi - The Scientific Research Society:

- NMSU Chapter member (2014-Present) and Secretary (2017-Present)
- NMSU Chapter President (2021-Present)

Soil Science Society of America:

- Convener Technical Session - Physical, Chemical, and Biological Processes Controlling Transport and Remediation of Emerging Contaminants in Soils (2016 Annual ASA, CSSA, and SSSA Meeting, Phoenix, AZ, Nov. 6-9)
- Convener Symposia for the SEQ Division - Physical, Chemical, and Biological processes Controlling Solute Transport and Remediation of Contaminants in Soils (2021 Annual Meeting, Virtual)
- Convener Technical Session - Physical, Chemical, and Biological processes Controlling Solute Transport and Remediation of Contaminants in Soils (2021 Annual Meeting, Virtual)

SELECTED STUDENT AND RESEARCH SCIENTIST MENTORING AND ADVISING**Ph.D. Committee Chair:**

- 2021– Present Ahsan Jamil: Machine Learning Characterization Methods for Mercury Transport and Surface Water-Hyporheic Zone Exchange. Ph.D. Major Advisor in the WSM Program, NMSU
- 2016–2021 Chia-Hsing (Peter) Tsai: Coupling Direct and Indirect Characterization Methods for Mercury Transport and Surface Water-Hyporheic Zone Exchange. Ph.D. Major Advisor in the WSM Program, NMSU
- 2015–2018 Naima Khan: 1,4-Dioxane In Situ Chemical Oxidation Using Strong Oxidants. Ph.D. Major Advisor in the WSM Program, NMSU

Ph.D. Committee Co-Chair:

- 2013–2019 Erek Fuchs: Groundwater Investigation, Characterization, and Analysis for an Alternative Irrigation Source for the Middle Rio Grande Agricultural Area. Ph.D. Co-Advisor (with Dr. King) in the WSM Program, NMSU

MS Committee Chair:

- 2021– Present Robert Safely: TBD. M.S. Major Advisor in the WSM Program, NMSU
- 2021– Present Rachael Apodaca: Multicomponent Sorption of PFAS Contaminants in Soils and Groundwater. M.S. Major Advisor in the WSM Program, NMSU
- 2020– Present Cheyenne Stice: Comparison of numerical and analytical modeling methods for pneumatic subsurface characterization. M.S. Major Advisor in the WSM Program, NMSU
- 2019–2021 Autumn Pearson: Geophysical Characterization of River-Groundwater Connection and Disconnection. M.S. Major Advisor in the WSM Program, NMSU
- 2019–2021 Michael Hitzelberger: PFAS Contaminant Transport Soils and Site Characterization at a Dairy Site. M.S. Major Advisor in the WSM Program, NMSU
- 2018–2020 Tanzila Ahmed: Statistical Characterization of Streambed Sediment Hydraulic Properties. M.S. Major Advisor in the WSM Program, NMSU
- 2017–2019 Chris Kubicki: Groundwater Age Dating for Recharge and Sustainability Assessment. M.S. Major Advisor in the WSM Program, NMSU
- 2015–2017 Justin Milavec: Trichloroethene and 1,4-Dioxane Contamination Mixture Dissolution and Sorption. M.S. Major Advisor in the WSM Program, NMSU
- 2015–2017 Logan Bridges: Manganese Oxide Supported Oxidation of 1,4-Dioxane Contamination in Groundwater. M.S. Major Advisor in the WSM Program, NMSU
- 2014–2016 Steven Maestas: Characterization of the Nature and Extent of the Suspended Particulate Material and Turbidity in Groundwater at the NASA White Sands Test Facility. M.S. Major Advisor in the WSM Program, NMSU
- 2014–2015 Spencer Willman: Assessment of Spatiotemporal Groundwater Level Changes Throughout New Mexico. M.S. Major Advisor in the WSM Program, NMSU
- 2013–2015 Naima Khan: Beneficial Use Evaluation for Oil & Gas Produced Water. M.S. Major Advisor in the WSM Program, NMSU
- 2013–2015 Adam Dettmer: 1,4-Dioxane In Situ Chemical Oxidation and Facilitated Transport. M.S. Major Advisor in the WSM Program, NMSU

Ph.D. Committee Member:

- 2020–Present Sarah Cerra: Long term effect of using RO concentrate in drip irrigation on chemical soil properties, soil-microbial habitat changes, and impact to *Atriplex canescens* and *A.*

- lentiformis. Ph.D. Thesis Committee (Major Advisor Dr. Manoj Shukla) in the WSM Program, NMSU
- 2018–Present Victoria Blumenberg: Water availability and sustainability in northeast New Mexico, specifically examining agroecosystem resilience in times of drought. Ph.D. Thesis Committee (Major Advisor Dr. Amy Ganguli) in the WSM Program, NMSU
- 2017–Present Kaavya Poliseti: Algal Bioremediation of Emerging Contaminants. Ph.D. Co-Advisor (Major Advisor Dr. Holguin) in the PES Program, NMSU
- 2017–2021 Khandaker Iftekharul Islam: Evaluation of Multiple Geostatistical Methods for Interpolation of Multiple Data Types. Ph.D. Thesis Committee (Major Advisor Dr. Brown) in the WSM Program, NMSU
- 2016–2019 Sarah Sayles: Evaluation of Groundwater Use for Pecan Irrigation Systems in Southern New Mexico. Ph.D. Thesis Committee (Major Advisor Dr. Ward) in the WSM Program, NMSU
- 2015–2017 Jose Juan Cruz Chairez: Water Balance and Quantification of Groundwater Recharge with Acequia Irrigation Systems in Northern New Mexico. Ph.D. Thesis Committee (Major Advisor Dr. Fernald) in the WSM Program, NMSU
- 2016–2017 Lu Lin: Photocatalysis of Contaminants of Emerging Concern. Ph.D. Thesis Committee (Major Advisor Dr. Pei Xu) in Civil Engineering, NMSU
- MS Committee Member:**
- 2019–2020 Kailey Garland: Adsorption of N-Nitrosodimethylamine (NDMA) onto Activated Carbons in a Lab-Scale Column. M.S. Thesis Committee (Major Advisor Dr. Catherine Brewer) in Chemical Engineering, NMSU
- 2019–2019 CJ Bianconi: The Adsorption of N-nitrosodimethylamine onto Wood-Based Biochar. M.S. Thesis Committee (Major Advisor Dr. Catie Brewer) in the Chemical and Materials Engineering Department, NMSU
- 2017–2018 Jonathan Ingram: Constraining the sediment provenance, Quaternary uplift, and slip history of the Santa Susana Mountains and fault, western Transverse Ranges, southern California through U-Pb detrital zircon geochronology of Cenozoic sediments. M.S. Thesis Committee (Major Advisor Dr. Reed Burgette) in Geology, NMSU
- 2017–2018 Ashley Page: Assessment of feasibility for a desalination plant in Santa Teresa, NM. M.S. Thesis Committee (Major Advisor Dr. Fernald) in the WSM Program, NMSU
- 2018–2018 Austin Hanson: Late Quaternary slip rates from offset alluvial fan surfaces along the Central Sierra Madre fault, southern California. M.S. Thesis Committee (Major Advisor Dr. Reed Burgette) in Geology, NMSU
- 2014–2015 Guanyu Ma: Assessment of shale gas produced water treatment, beneficial use and management. M.S. Thesis Committee (Major Advisor Dr. Xu) in the Environmental Engineering Program, NMSU
- 2014–2015 Celeste Lewis: NDMA Contaminant Treatment System Development and Evaluation. M.S. Thesis Committee (Major Advisor Dr. Papelis) in the Environmental Engineering Program, NMSU
- 2013–2015 Benjamin Nana O Kuffour: Assessment of water table and water quality variations with respect to river flow along Rio Grande River between Garfield NM and Fabens TX. M.S. Thesis Committee (Major Advisor Dr. Stringam) in the WSM Program, NMSU
- 2013–2014 Rachael Jones: Estimating the Volume of the Southern Mesilla Basin Aquifer with GIS. M.S. Thesis Committee (Major Advisor Dr. Fernald) in the WSM Program, NMSU

External Graduate Student Committee Member:

- 2019–2020 Ahmet Emin: Multicomponent Transport Modeling of Uranium Biosequestration. M.S. Thesis Committee (Major Advisor Dr. Brusseau) in Environmental Science at University of Arizona
- 2016–Present Rebecca R. Greenberg: Remediation of polyfluorinated compound contaminant mixtures in groundwater. Ph.D. Thesis Committee (Major Advisor Dr. Tick) in Geology at University of Alabama
- 2016–2018 Joe (Boone) Abbott: Nonideal Dissolution of Multicomponent Nonaqueous Phase Liquids (NAPLs) in Contaminated Groundwater. M.S. Thesis Committee (Major Advisor Dr. Tick) in Geology at University of Alabama
- 2013–2015 Mark Padgett: Rate-Limited Diffusion and Dissolution of Multicomponent Nonaqueous Phase Liquids (NAPLs) and Effects on Mass Discharge in Groundwater. M.S. Thesis Committee (Major Advisor Dr. Tick) in Geology at University of Alabama
- 2013–2015 Doug Mateas: Creating NAPL-Mixtures for Solubility and Mass-Flux Reduction: A Novel In-Situ Source-Remediation Method. M.S. Thesis Committee (Major Advisor Dr. Tick) in Geology at University of Alabama
- 2011–2012 Kieran McDonald: X-Ray Microtomography Evaluation of Two and Three Phase Fluids in Porous Media. M.S. Thesis Committee in the SWES Department, UA
- 2011–2012 Andrew McMillan: Effects of Ethanol Addition on Denitrification Through a Natural-Gradient Test at the Uranium Mill Tailing Site in Monument Valley, Arizona. M.S. Thesis Committee in the SWES Department, UA
- 2009–2010 Andrew Borden: Pilot Test of Enhanced Nitrate Attenuation at the Uranium Mill Tailing Site in Monument Valley, Arizona. M.S. Thesis Committee in the SWES Department, UA

Research Staff and Postdoctoral Advisor:

- 2021–Present Chia-Hsing (Peter) Tsai – Postdoctoral Research Scientist: Coupling Direct and Indirect Characterization Methods for Mercury Transport and Surface Water-Hyporheic Zone Exchange
- 2017–Present Ruba A. M. Mohamed - Staff Research Scientist: PFAS Transport Through Soils and Water/Wastewater Treatment
- 2018–2020 Naima A. Khan - Staff Research Scientist: Solute Transport and Advanced Oxidation of Contaminants in Groundwater
- 2016–2017 Binod Chaudhary – Postdoctoral Research Scientist: Produced Water Quality Spatial Variability
- 2015–2016 Hao Chen - Postdoctoral Research Scientist: Metal-Free Catalysis of Persulfate Activation and Organic-Pollutant Degradation by Nitrogen-Doped Graphene and Aminated Graphene.
- 2012–2013 Hun Bok Jung: Reservoir-Stimulation Optimization with Operational Monitoring for Creation of Enhanced Geothermal Systems. ½ FTE Post-Doctoral Advisor, PNNL.

Undergraduate Researcher Advisor:

- 2021– Present Kaitlin Marry: Comparison of Multiple Adsorbant Materials for PFAS Water Contamination Treatment. MARC Program Undergraduate Research Advisor, NMSU
- 2020–2021 Maya Gabitzsch: Research Support of Experiments including PFAS Transport Through Soils. Undergraduate Environmental Science Research Advisor, NMSU
- 2020–2021 Adrianna, Tafoya: Research Experience for Learning to Use Chemicals in the Lab. Undergraduate Environmental Science Research Advisor, NMSU

- 2019–2020 Cheyenne Stice: Research Support of Experiments including PFAS Transport Through Soils. Undergraduate Environmental Science Research Advisor, NMSU
- 2018–2019 Autumn Pearson: Research Support of Experiments including Transport Through Soils and Surface-Groundwater Exchange. Undergraduate Environmental Science Research Advisor, NMSU
- Summer 2018 Amanda Laura: Measurement of Surface/Groundwater Exchange. Undergraduate Intern Advisor in the DOE-MSIPP at ORNL
- 2018–Present Anthony Cornwell: Algal Bioremediation of Emerging Contaminants. Undergraduate Research Advisor with Dr. F. Omar Holguin in the MARC Program, NMSU
- 2016–2017 Kaitlin Cordova: Database Spatial Evaluation of Groundwater Contamination Sites Throughout USA. Undergraduate Environmental Science Research Advisor, NMSU
- 2014–2016 Sativa Cruz: In Situ Complexation and Facilitated Transport of Oxidants. Undergraduate Env. Science Research Advisor in the MARC Program, NMSU