Tao Wen

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RESEARCH AND TEACHING INTERESTS

My primary research interests involve studying water and elemental cycles within coupled human and natural systems across varying temporal and spatial scales using both data science (big data) and case study (small data) approaches. Since joining the faculty in 2020, I have designed, built, and directed the Syracuse University **H**ydrogeochemistry **A**nd e**N**vironmental **D**ata **S**ciences (**HANDS**) and **N**oble Gases in **E**arth **S**ystems **T**racing (**NEST**) Research Laboratories. In the WEN research group, we analyze water quality parameters and the isotopic compositions of selected elements (e.g., oxygen, hydrogen, carbon, nitrogen) and noble gases (i.e., He, Ne, Ar, Kr, Xe) using ion chromatography, optical emission spectrometry, water isotope analyzers, and mass spectrometry. Additionally, we develop and utilize emerging machine learning and geostatistical tools to assess the interplay between water and elemental cycles in Earth-surface systems, as well as investigate how these cycles are regulated by human activities (e.g., energy extraction, urbanization) and natural processes. I teach a variety of water-related and data science-related courses at Syracuse University for both undergraduate and graduate students, including ***Introduction to Earth and Environmental Data Analysis*** (EAR 201), ***Water and Our Environment*** (EAR 205), ***Hydrogeology*** (EAR 401/601), ***Environmental Aqueous Geochemistry*** (EAR 419/619), and ***Machine Learning in Earth and Environmental Sciences*** (EAR 400/600).

EDUCATION

University of Michigan	Ann Arbor, Michigan
Ph.D., Department of Earth and Environmental Sciences	*April 2017*
M.S., Department of Earth and Environmental Sciences	*April 2014*

University of Science and Technology of China	Hefei, China
B.S., School of Earth and Space Sciences	*July 2011*

POSITIONS HELD

2020-present	Assistant Professor, Department of Earth and Environmental Sciences, Syracuse University
2019-2020	Distinguished Postdoctoral Scholar, College of Earth and Mineral Sciences, Pennsylvania State University

2017-2019	Postdoctoral Scholar, Earth and Environmental Systems Institute, Pennsylvania State University
2011-2017	Graduate Student Researcher, Noble Gas Laboratory, University of Michigan
2009-2011	Undergraduate Researcher, Institute of Polar Environment, University of Science and Technology of China
2009 summer	Undergraduate Researcher, Advanced Laboratory for Environmental Research and Technology at Suzhou, China

AWARDS AND HONORS

2025	Emerging Investigator Series Award, International Association of GeoChemistry
2021	Excellence in Review Award from Applied Geochemistry, International Association of GeoChemistry
2019	Office of Postdoctoral Affairs Travel Award, Pennsylvania State University
2012-2016	Rackham Conference Travel Award, University of Michigan
2016	Best Student Poster Presentation, American Institute of Professional Geologists Michigan Section
2015-2016	Scott Turner Research Awards, University of Michigan
2012	Stewart R. Wallace Fellowship, University of Michigan
2011	Excellent Undergraduate Researcher Award, University of Science and Technology of China
2010	Guanghua Education Scholarship, University of Science and Technology of China
2008-2009	Outstanding Student Scholarship, University of Science and Technology of China

GRANTS

Summary	*Total funding awarded as PI: **$933,481**, total funding awarded as co-PI and PI: **$4,396,693***

Federal

| 2024-2027 | EA: Acquisition of a Triple Quadrupole ICP-MS at the Department of Earth and Environmental Sciences, Syracuse University, National Science Foundation EAR/IF, PI: Lu, Z., Co-PIs: **Wen, T.**, Ivany, L., $209,493. |

2024-2027   Developing a Data-Driven Framework to Assess the Status and Environmental Impacts of Marginal Oil and Gas Wells, Department of Energy NETL, PI: **Wen, T.**, $450,000.

2022-2026   Collaborative Research: Frameworks: DeCODER (Democratized Cyberinfrastructure for Open Discovery to Enable Research), National Science Foundation CSSI, PI: **Wen, T.**, $460,281 (total grant: $3,200,000).

2020   Developing Online Learning Module: Intelligent Earth Computational and Data Science Methods for Research, National Science Foundation HydroLearn Fellowship, PI: **Wen, T.**, $3,000.

State

n/a

Other

2024-2025   Safeguarding Syracuse Communities from Urban Flooding and Water Quality Issues Using Real-time Stream Monitoring Techniques, Syracuse University Engaged Communities Network Mini Grant, PI: **Wen, T.**, $10,000.

2024-2025   Evaluating Long-Term Water Quality Trend in an Urban Stream with Mixed Human-Built Infrastructure, Syracuse University Faculty Creative Activities and Research (FCAR) Grant Program, PI: **Wen, T.**, $3,000.

2022-2026   An Analysis of Water Quality and Exposures in the Oldest Hydrocarbon Basin in the USA, Health Effects Institute Energy, PI: Baka, J., Co-PIs: Brantley, S., **Wen, T.**, $16,599 (total grant $250,000).

2022   Evaluating the Impact of Land Management and Land Cover on the Release of Cemetery-derived Nutrients and Heavy Metals to Surface Water, Syracuse University Office of Undergraduate Research and Creative Engagement (SOURCE), PI: **Wen, T.**, $7,200.

2022   Support for the 2022 Shale Network Workshop, Oak Ridge Associated Universities, PI: Baka, Co-PI: **Wen, T.**, $4,000.

2021-2023   Analyzing Community Exposures to Potential Ground Water Contamination in a Region with Overlapping Energy Extraction Activities in Southwestern

Updated on 04/16/2025

Pennsylvania, Health Effects Institute Energy, PI: Baka, J., Co-PIs: Brantley, S., **Wen, T.**, $7,185 (total grant $250,000).

2021-2022	Developing a Cloud-based Open-Source Platform for an Automatic High-throughput Monitoring System to Safeguard Stream Water Quality, Earth Science Information Partners, PI: **Wen, T.**, Co-PIs: Xue, L., Agarwal, A., Woda, J., Castronova, A., Zhang, S., $10,000.

PUBLICATIONS

* = Equal contributions and/or corresponding author
† = Postdoc author, directly supervised by Wen at time of publication
†† = Graduate student author, directly supervised by Wen at time of publication
††† = Undergraduate student author, directly supervised by Wen at time of publication
§ = Student or postdoc author of collaborator at time of publication

Journal Articles
In Review

Liu, R., §Xu, R., **Wen, T.***, ††Atchinson, K., Hao, F., Hu, L., Tian, J., Zhang, Y., Liu, J. and Tuo, L., Noble gas constraints on fluid flow and hydrocarbon accumulation in the Yinggehai Basin, Northwestern South China Sea. *Geoscience Frontiers*.

§Woodley, M., Mills, J.S., Mahoney, M., Beier, C., **Wen, T.** and Tuttle, S., A Machine Learning Approach for Estimation of Snow Depth from Snow Temperature for a Northeastern U.S. Forested Watershed. *Hydrological Processes*.

Wang, S., Zhou, X., Huang, X., Zeng, Z., **Wen, T.**, et al., Tectonic Control on Mantle-Source Helium Migration at the Southeastern Tibetan Plateau Margin. *Geological Society of America Bulletin*.

Accepted, In Press, and Published
2025

45. ††Wang, Z. and **Wen, T.***, 2025. Inferring End-members from Geoscience Data using Simplex Projected Gradient Descent-Archetypal Analysis. *Journal of Geophysical Research: Machine Learning and Computation*. https://doi.org/10.1029/2024JH000540

44. ††E, B., Zhang, S., Carter, E., §Meem, T.J. and **Wen, T.***, 2025. Predicting Salinity and Alkalinity Fluxes of U.S. Freshwater in a Changing Climate: Integrating Anthropogenic and Natural Influences Using Data-Driven Models. *Applied Geochemistry*. https://doi.org/10.1016/j.apgeochem.2025.106285

43. Liu, R., **Wen, T.***, Pinti, D.L., Hao, F., Xu, S., Shu, Z. and Xu, L., 2025. Spatiotemporal variation in tectonic deformation of the Upper Yangtze Block documented by noble gases in Paleozoic shale fluids. *International Journal of Coal Geology*. https://doi.org/10.1016/j.coal.2024.104671

2024

42.	§Armos, B., Zhang, S., **Wen, T.**, Gellerson, E. and Daripa, P., 2024. A Harmonized River-Ocean Coupled Database for the Northern Gulf of Mexico. *Scientific Data*. http://doi.org/10.1038/s41597-024-04338-1

41.	§Shaheen, S., **Wen, T.**, §Zheng, Z., Xue, L., Baka, J. and Brantley, S.L., 2024. Wastewaters Coproduced with Shale Gas Drive Slight Regional Salinization of Groundwater. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.4c03371

40.	Hammond, P.A., **Wen, T.***, Woda, J. and Oakley, D., 2024. Pathways and environmental impacts of methane migration: case studies in the Marcellus Shale, USA. *Geofluids*. https://doi.org/10.1155/2024/9290873

39.	Liu, Y., Wang, T., **Wen, T.**, Zhang, J., Liu, B., Li, Y., Zhang, H., Rong, X., Ma, L., Guo, F., Liu, X and Sun, Y., 2024. Deep learning-based grain size decomposition model: A feasible solution for dealing with methodological uncertainty. *Sedimentology*. https://doi.org/10.1111/sed.13195

38.	††Nesheim, S., Yu, Z., Tuttle, S., †††Klein, J. and **Wen, T.***, 2024. Assessing impacts of cemeteries on water quality in an urban headwater watershed with mixed human-built infrastructure. *Hydrological Processes*. https://doi.org/10.1002/hyp.15128

2023

37.	Kang, M., Boutot, J., McVay, R.C., Roberts, K., Jasechko, S., Perrone, D., **Wen, T.**, Lackey, G., Raimi, D., Digiulio D.C., Shonkoff, S.B., Carey, J.W., Elliott, E.G., Vorhees, D.J. and Peltz, A., 2023. Environmental risks and opportunities of orphaned oil and gas wells in the United States. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/acdae7

36.	§Shaughnessy, A.R., §Forgeng, M.J., **Wen, T.**, Gu, X., Hemingway, J. and Brantley, S.L., 2023.Linking Stream Chemistry to Subsurface Redox Architecture. *Water Resources Research*. https://doi.org/10.1029/2022WR033445

35.	††E, B., Zhang, S., Driscoll, C.T. and **Wen, T.***, 2023. Human and natural impacts on the U.S. freshwater salinization and alkalinization: A machine learning approach. *Science of The Total Environment*. https://doi.org/10.1016/j.scitotenv.2023.164138

34.	Carter, E., Hultquist, C. and **Wen, T.**, 2023. GRRIEn Framework: a data science cheat sheet for earth scientists working at large spatial scales. *Artificial Intelligence for the Earth Systems*. https://doi.org/10.1175/AIES-D-22-0065.1

2022

33.	§Guo, X., Liu, R., Xu, S., Feng, B., **Wen, T.**, Zhang, T., 2022. Structural deformation of shale pores in the fold-thrust belt: The Wufeng-Longmaxi shale in the Anchang Syncline of Central Yangtze Block. *Advances in Geo-Energy Research*. 6, 515–530. https://doi.org/10.46690/ager.2022.06.08

32.	Cheng, P., Xiao, X., Ren, B., **Wen, T.** and Yu, S., 2022. Editorial: New advances in light oil/condensate geochemistry. *Frontiers in Earth Science*. https://doi.org/10.3389/feart.2022.1079834

31.   ††Epuna, F., §Shaheen, S. and **Wen, T.***, 2022. Road Salting and Natural Brine Migration Revealed as Major Sources of Groundwater Contamination Across Regions of Northern Appalachia With and Without Unconventional Oil and Gas Development. *Water Research*. https://doi.org/10.1016/j.watres.2022.119128

30.   **Wen, T.***, §Chen, C., Zheng, G., Bandstra, J. and Brantley, S.L., 2022. Using a Neural Network – Physics-based Hybrid Model to Predict Soil Reaction Fronts. *Computers & Geosciences*. https://doi.org/10.1016/j.cageo.2022.105200

29.   §Shaheen, S., **Wen, T.**, Herman, A. and Brantley, S.L., 2022. Geochemical Evidence of Potential Groundwater Contamination with Human Health Risks Where Hydraulic Fracturing Overlaps with Extensive Legacy Hydrocarbon Extraction. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.2c00001

28.   §Wang, S., Huang, X., **Wen, T.**, Wang, X., Wang, H., Han, Y., Li, Z., Kuang, J. and Qi S., 2022. Noble Gases in Shallow Aquifers Preserve Signatures of Boiling Events beneath Weishan Volcano of Wudalianchi Volcanic Field, Northeast China. *Journal of Hydrology*. https://doi.org/10.1016/j.jhydrol.2022.128246

27.   Boumaiza, L., Walter, J., Chesnaux, R., Stotler, R., **Wen, T.**, Johannesson K., Brindha K. and Huneau, F., 2022. Chloride-salinity as indicator of the chemical composition of groundwater: empirical predictive model based on aquifers in Southern Quebec, Canada. *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-022-19854-z

26.   He, Y., Zhou, Y., **Wen, T.**, Zhang, S., Huang, F., Zou, X., Ma, X., Zhu, Y., 2022. A review of machine learning in geochemistry and cosmochemistry: Method improvements and applications. *Applied Geochemistry*. https://doi.org/10.1016/j.apgeochem.2022.105273

2021

25.   Brantley, S.L., **Wen, T.**, Agarwal, D., Catalano, J.G., Schroeder, P.A., Lehnert, K., Varadharajan, C., Pett-Ridge, J., Engle, M., Castronova, A.M., Hooper, R.P., Ma, X., Jin, L., McHenry, K., Aronson, E., Shaughnessy, A.R., Derry, L.A., Richardson, J., Bales, J., Pierce, E.M., 2021. The future low-temperature geochemical data-scape as envisioned by the U.S. geochemical community. *Computers & Geosciences*. https://doi.org/10.1016/j.cageo.2021.104933

24.   Liu, R., **Wen, T.***, Amalberti, J., Zheng, J., Hao, F. and Jiang D., 2021. The Dichotomy in Noble Gas Signatures Linked to Tectonic Deformation in Wufeng-Longmaxi Shale, Sichuan Basin. *Chemical Geology*. https://doi.org/10.1016/j.chemgeo.2021.120412

23.   Zheng, G., Liu, C., Wei, H., Jenkins, P., Chen, C., **Wen, T.** and Li, Z., 2021, August. Knowledge-based Residual Learning. In *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI 2021)*. https://doi.org/10.24963/ijcai.2021/228

22.   **Wen, T.***, Liu, M., Woda, J., Zheng, G. and Brantley, S.L., 2021. Detecting Anomalous Methane into Groundwater within Hydrocarbon Production Areas across the United States. *Water Research*. https://doi.org/10.1016/j.watres.2021.117236

21.   §Shaughnessy, A., Gu, X., **Wen, T.** and Brantley, S.L., 2021. Machine Learning Deciphers

CO$_2$ Sequestration and Subsurface Flowpaths from Stream Chemistry. *Hydrology and Earth System Sciences*. https://doi.org/10.5194/hess-25-3397-2021

20.   Niu, X., **Wen, T.** and Brantley, S.L., 2021. Exploring the trend of stream sulfate concentrations as U.S. power plants shift from coal to shale gas. *Environmental Pollution*. https://doi.org/10.1016/j.envpol.2021.117102

Prior to 2021

19.   [§]Agarwal, A.*, **Wen, T.***, [§]Chen, A., [§]Zhang, A.Y., Niu, X., Zhan, X., Xue, L., Brantley, S.L., 2020. Assessing Contamination of Stream Networks Near Shale Gas Development Using a New Geospatial Tool. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.9b06761

18.   [§]Woda, J., **Wen, T.**, Lemon, J., [§]Marcon, V., Keeports, C.M., Zelt, F., Steffy, L.Y. and Brantley, S.L., 2020. Methane concentrations in streams reveal gas leak discharges in regions of oil, gas, and coal development. *Science of The Total Environment.* https://doi.org/10.1016/j.scitotenv.2020.140105

17.   Hammond, P.A., **Wen, T.**, Brantley, S.L. and Engelder, T., 2020. Gas well integrity and methane migration: evaluation of published evidence during shale-gas development in the USA. *Hydrogeology Journal*. https://doi.org/10.1007/s10040-020-02116-y

16.   [§]Shaughnessy, A., **Wen, T.**, Niu, X. and Brantley, S.L., 2019. Three Principles to Use in Streamlining Water Quality Research through Data Uniformity. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.9b06406

15.   **Wen, T.***, [§]Woda, J., [§]Marcon, V., Niu, X., Li, Z. and Brantley, S.L., 2019. Exploring How to Use Groundwater Chemistry to Identify Migration of Methane near Shale Gas Wells in the Appalachian Basin. *Environmental Science & Technology*. https://doi.org/10.1021/acs.est.9b02290

14.   Liu, R., Heinemann, N., Liu, J., Zhu, W., Wilkinson, M., Xie, Y., Wang, Z., **Wen, T.**, Hao, F., Haszeldine, S.R., 2019. CO$_2$ Sequestration by Mineral Trapping in Natural Analogues in the Yinggehai Basin, South China Sea. *Marine and Petroleum Geology*. https://doi.org/10.1016/j.marpetgeo.2019.03.018

13.   **Wen, T.***, [§]Agarwal, A.*, Xue, L., [§]Chen, A., Herman, A., Li, Z. and Brantley, S.L., 2019. Assessing Changes in Groundwater Chemistry in Landscapes with More than 100 Years of Oil and Gas Development. *Environmental Science: Processes & Impacts*. http://doi.org/10.1039/C8EM00385H

12.   [§]Woda, J., **Wen, T.**, [§]Oakley, D., Yoxtheimer, D., Engelder, T., Castro, M.C. and Brantley, S.L., 2018. Detecting and Explaining Why Aquifers Occasionally Become Degraded Near Hydraulically Fractured Shale Gas Wells. *Proceedings of the National Academy of Sciences*, 115(49), pp.12349-12358. http://doi.org/10.1073/pnas.1809013115

11.   Larson, T.E., Nicot, J.P., Mickler, P., Castro, M.C., Darvari, R., **Wen, T.** and Hall, C.M., 2018. Monitoring Stray Natural Gas in Groundwater with Dissolved Nitrogen. An Example from Parker County, Texas. *Water Resources Research*, 54(9), pp.6024-6041. http://doi.org/10.1029/2018WR022612

10.   **Wen, T.***, Niu, X., Gonzales, M., §Zheng, G., Li, Z. and Brantley, S.L., 2018. Big Groundwater Data Sets Reveal Possible Rare Contamination Amid Otherwise Improved Water Quality for Some Analytes in a Region of Marcellus Shale Development. *Environmental Science & Technology*, 52(12), pp.7149-7159. http://doi.org/10.1021/acs.est.8b01123

9.   Niu, X., **Wen, T.**, Li, Z. and Brantley, S.L., 2018. One Step toward Developing Knowledge from Numbers in Regional Analysis of Water Quality. *Environmental Science & Technology*, 52(6), pp.3342-3343. http://doi.org/10.1021/acs.est.8b01035

8.   **Wen, T.***, Pinti, D.L., Castro, M.C., López-Hernández, A., Hall, C.M., Shouakar-Stash, O. and Sandoval-Medina, F., 2018. A Noble Gas and $^{87}Sr/^{86}Sr$ Study in Fluids of the Los Azufres Geothermal Field, Mexico – Assessing Impact of Exploitation and Constraining Heat Sources. *Chemical Geology*, 483, pp.426-441. http://doi.org/10.1016/j.chemgeo.2018.03.010

7.   Brantley, S.L., Vidic, R.D., Brasier, K., Yoxtheimer, D., Pollak, J., Wilderman, C. and **Wen, T.**, 2018. Engaging over data on fracking and water quality. *Science*, *359*(6374), pp.395-397. http://doi.org/10.1126/science.aan6520

6.   **Wen, T.***, Castro, M.C., Nicot, J.P., Hall, C.M., Pinti, D.L., Mickler, P., Darvari, R. and Larson, T., 2017. Characterizing the noble gas isotopic composition of the Barnett Shale and Strawn group and constraining the source of stray gas in the Trinity Aquifer, north-central Texas. *Environmental Science & Technology*, *51*(11), pp.6533-6541. http://doi.org/10.1021/acs.est.6b06447

5.   **Wen, T.***, Castro, M.C., Nicot, J.P., Hall, C.M., Larson, T., Mickler, P. and Darvari, R., 2016. Methane Sources and Migration Mechanisms in Shallow Groundwaters in Parker and Hood Counties, Texas - A Heavy Noble Gas Analysis. *Environmental Science & Technology*, *50*(21), pp.12012-12021. http://doi.org/10.1021/acs.est.6b01494

4.   **Wen, T.***, Castro, M.C., Ellis, B.R., Hall, C.M. and Lohmann, K.C., 2015. Assessing compositional variability and migration of natural gas in the Antrim Shale in the Michigan Basin using noble gas geochemistry. *Chemical Geology*, *417*, pp.356-370. http://doi.org/10.1016/j.chemgeo.2015.10.029

3.   **Wen, T.***, Castro, M.C., Hall, C.M., Pinti, D.L. and Lohmann, K.C., 2015. Constraining groundwater flow in the Glacial Drift and Saginaw aquifers in the Michigan Basin through helium concentrations and isotopic ratios. *Geofluids*, *16*(1), pp.3-25. http://doi.org/10.1111/gfl.12133

2.   Boucher, C., Pinti, D.L., Roy, M., Castro, M.C., Cloutier, V., Blanchette, D., Larocque, M., Hall, C.M., **Wen, T.** and Sano, Y., 2015. Groundwater age investigation of eskers in the Amos region, Quebec, Canada. *Journal of Hydrology*, *524*, pp.1-14. http://doi.org/10.1016/j.jhydrol.2015.01.072

1.   Nie, Y., Liu, X., **Wen, T.**, Sun, L. and Emslie, S.D., 2014. Environmental implication of nitrogen isotopic composition in ornithogenic sediments from the Ross Sea region, East Antarctica: $\Delta^{15}N$ as a new proxy for avian influence. *Chemical Geology*, *363*, pp.91-100. http://doi.org/10.1016/j.chemgeo.2013.10.031

Book and Book Chapters

3. **Wen, T.**, 2021. Data Mining. In: Daya Sagar, B.S., Cheng, Q., McKinley, J., Agterberg, F. (eds) *Encyclopedia of Mathematical Geosciences*. Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-030-26050-7_77-1.

2. **Wen, T.**, 2020. Data Sharing. In: Schintler, L., McNeely, C. (eds) *Encyclopedia of Big Data*. Springer, Cham, Switzerland. 3pp. http://doi.org/10.1007/978-3-319-32001-4_322-1.

1. **Wen, T.**, 2020. Data Aggregation. In: Schintler, L., McNeely, C. (eds) *Encyclopedia of Big Data*. Springer, Cham, Switzerland. 4pp. http://doi.org/10.1007/978-3-319-32001-4_296-1.

Reports and Theses

4. **Wen, T.**, 2017. *Development of Noble Gas Techniques to Fingerprint Shale Gas and to Trace Sources of Hydrocarbons in Groundwater* (Doctoral dissertation, University of Michigan).

3. Nicot, JP., et al., 2015. *Understanding and Managing Environmental Roadblocks to Shale Gas Development: An Analysis of Shallow Gas, NORM, and Trace Metals* (Technical Report, http://www.rpsea.org/projects/11122-56/).

2. **Wen, T.**, 2014. *Constraining groundwater flow in the Glacial Drift and Saginaw Aquifers in the Michigan Basin through helium concentrations and isotopic ratios* (Master thesis, University of Michigan).

1. **Wen, T.**, 2011. *Analysis on nitrogen species and isotopic composition of the ornithogenic sediments from Cape Bird, Ross Island, East Antarctica* (Bachelor thesis, University of Science and Technology of China).

Preprints and Postprints

4. Brantley, S.L., **Wen, T.**, Agarwal, D., Catalano, J., Schroeder, P.A., Lehnert, K., Varadharajan, C., Pett-Ridge, J., Engle, M., Castronova, A.M. and Hooper, R., A Vision for the Future Low-Temperature Geochemical Data-scape. *EarthArXiv*. https://doi.org/10.31223/X5ZP5W.

3. Shaughnessy, A.R., Gu, X., **Wen, T.** and Brantley, S.L., 2020. Machine Learning Deciphers CO_2 Sequestration and Subsurface Flowpaths from Stream Chemistry. *Hydrology and Earth System Sciences Discussions*. https://doi.org/10.5194/hess-2020-537.

2. Woda, J., **Wen, T.**, Lemon, J., Marcon, V., Keeports, C.M., Zelt, F., Steffy, L.Y. and Brantley, S.L., 2020. Methane concentrations in streams reveal gas leak discharges in regions of oil, gas, and coal development. *EarthArXiv*. https://doi.org/10.31223/osf.io/qka7d.

1. Zheng, G., Liu, M., **Wen, T.**, Wang, H., Yao, H., Brantley, S.L. and Li, Z., 2019. Targeted Source Detection for Environmental Data. *arXiv preprint*. arXiv:1908.11056.

Open Access Datasets and Code

15. **Wen, T.**, 2025. Datasets and codes for the peer review article E et al. (2025) "Predicting Salinity and Alkalinity Fluxes of U.S. Freshwater in a Changing Climate: Integrating Anthropogenic and Natural Influences Using Data-Driven Models", HydroShare. https://doi.org/10.4211/hs.dcf1135ac217455d90f62c709cecabc6

14. **Wen, T.**, 2024. Noble gases in Paleozoic shale fluids document tectonic events and fluid migration in the Upper Yangtze Block, Zenodo. https://doi.org/10.5281/zenodo.6963863

13. **Wen, T.**, 2023. Datasets and codes for the peer review article "Human and natural impacts on the U.S. freshwater salinization and alkalinization: A machine learning approach" (1.0), Zenodo. https://doi.org/10.5281/zenodo.7937820

12. **Wen, T.**, 2022. HANDS-Research-Group/HNN_Soil_Reaction_Front: Predicting Soil Reaction Front Using Hybrid Neural Network (v1.0.0), Zenodo. https://doi.org/10.5281/zenodo.6974714

11. **Wen, T.** and Brantley, S.L., 2022. A snapshot of the entire Shale Network database as of June 2022, Data Commons, Penn State University. https://doi.org/10.26208/z1hh-bx03

10. Shaheen, S.W., **Wen, T.**, Herman, A. and Brantley, S.L., 2022. Geochemical Evidence of Potential Groundwater Contamination with Human Health Risks Where Hydraulic Fracturing Overlaps with Extensive Legacy Hydrocarbon Extraction, Data Commons, Penn State University. https://doi.org/10.26208/2nqe-wd53

9. **Wen, T.**, 2021. Sliding Window Geospatial Tool for Analyzing Geospatial Relationship in Earth and Environmental Sciences Data (v1.0), Zenodo. https://doi.org/10.5281/zenodo.5450671

8. **Wen, T.** and Brantley, S.L., 2021. Archived Dataset for Wen et al. (2021) in Water Research, Data Commons, Penn State University. https://doi.org/10.26208/qs4c-ks39

7. **Wen, T.** and Brantley, S.L., 2021. Shale Network database – A snapshot of the Entire Shale Network database as of March 2021, Data Commons, Penn State University. https://doi.org/10.26208/41rm-q220

6. **Wen, T.** and Brantley, S.L., 2021. Shale Network – Production, Injection, and Flowback Water Geochemistry in shale gas development area in the northeastern USA as of March 2021, Data Commons, Penn State University. https://doi.org/10.26208/0f3v-zr37

5. **Wen, T.**, Woda, J., Marcon, V., Gonzales, M., Niu, X., Herman, A., Guarnieri, M., Li, Z., Brantley, S.L., 2019. Shale Network – Statewide Groundwater in Pennsylvania as of January 2019, Data Commons, Penn State University. https://doi.org/10.26208/8ag3-b743

4. **Wen, T.**, Niu, X., Herman, A., Guarnieri, M., Li, Z. and Brantley, S.L., 2019. Shale Network – Statewide Surface in Pennsylvania as of February 2018, Data Commons, Penn State University. https://doi.org/10.26208/dbq0-k948

3. **Wen, T.**, Gonzales, M., Niu, X., Herman, A., Guarnieri, M., Li, Z. and Brantley, S.L., 2018. Shale Network – Mercer County Groundwater as of August 2018, Data Commons, Penn State University. https://doi.org/10.18113/D3967X

2. **Wen, T.**, Woda, J., Gonzales, M., Herman, A. and Brantley, S.L., 2018. Shale Network – Lycoming County Groundwater as of October 2018, Data Commons, Penn State University.

https://doi.org/10.18113/D35M2X

1.   **Wen, T.**, Gonzales, M., Niu, X., Herman, A., Guarnieri, M., Li, Z. and Brantley, S.L., 2018. Shale Network – Bradford County Groundwater as of May 2018, Data Commons, Penn State University. https://doi.org/10.26208/rj0h-qf52

Online Educational Modules and Courses

7.   **Wen, T.**, 2025. EAR 400/600 – Machine Learning in Earth and Environmental Sciences. https://jaywen.com/courses/ear-400-ml-ees/

6.   **Wen, T.**, 2024. EAR 419/619 – Environmental Aqueous Geochemistry. https://jaywen.com/courses/ear-419-environmental-aqueous-geochemistry/

5.   **Wen, T.**, Bandaragoda, C. and Harris, L., 2020. Data Science in Earth and Environmental Sciences. https://edx.hydrolearn.org/courses/course-v1:SyracuseUniversity+EAR601+2020_Fall/about

4.   **Wen, T.**, Brazil, L., Brantley, S. L., Pelepko, S. and Beattie, S., 2018a. Bromide in the Allegheny River System. https://serc.carleton.edu/hydromodules/steps/191853.html

3.   **Wen, T.**, Brazil, L., Brantley, S. L., Pelepko, S. and Beattie, S., 2018b. Earthquakes in Pennsylvania. https://serc.carleton.edu/hydromodules/steps/191859.html

2.   **Wen, T.**, Brazil, L., Brantley, S. L., Pelepko, S. and Beattie, S., 2018c. How Pennsylvania Disposes of Brines Safely. https://serc.carleton.edu/hydromodules/steps/191889.html

1.   **Wen, T.**, Brazil, L., Brantley, S. L., Pelepko, S. and Beattie, S., 2018d. Environmental Issues Related to Brine Disposal from Oil and Gas Development in Pennsylvania. https://serc.carleton.edu/hydromodules/units/191769.html

TEACHING

EAR 400/600 – Machine Learning in EES, Syracuse University   *Every other spring*
- At this end of the course, students will be able to describe various concepts of programming, apply geospatial analysis and machine learning techniques to address real-world earth and environmental science questions, and interpret model outputs.

EAR 419/619 – Aqueous Geochemistry, Syracuse University   *Every fall*
- This course covers topics including processes and evolution of the chemical composition of water in the natural hydrologic cycle as well as methods of hydrochemical interpretation applied to ground water and pollution problems. This course includes lectures, field work, and laboratory work.

EAR 200 – Intro to Data Analysis in Earth Sci., Syracuse University   *Every spring*
- This course covers topics including describing and comparing sample populations, simple data manipulations, data visualization, creating and working with databases, surface contouring and modeling, basic GIS principles, and simple computer modeling of geologic processes.

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EAR 205 – Water and Our Environment, Syracuse University   *Every other spring*
- This course covers the origin, occurrence, chemistry, and hydrology of water on earth. Class topics include climate change, contamination, and water supply issues within context of water sustainability.

EAR 401/601 – Hydrogeology, Syracuse University   *Fall 2020; Fall 2021*
- This course covers the fundamentals of groundwater hydrology and hydraulics.

EAR 600 – Foundations of Geosciences, Syracuse University   *Fall 2022*
- This course is intended to give students from across the geosciences the opportunity to explore and discuss some of the more exciting discoveries, mysteries, and theories underpinning different aspects of the Earth system and to exchange ideas with people from across the different subdisciplines of our department.

GEOSC/GEOG 497 – Data Mining in Environ. Sci., Penn State University   *Fall 2019*
- Applying both conventional and emerging data analytics tools to studying problems in the environmental sciences through mini-lectures and hands-on projects

Co-teaching GEOSC 560 – Kinetics, Penn State University   *Spring 2019*
- Using data-driven models to assess the impact of natural and anthropogenic features on weathering rate on a watershed scale

Workshop Instructor in Shale Network Workshop, Penn State University   *May 2018*
- Computer module demonstration and hands-on exercise: Created and prepared learning material; taught water chemistry about Marcellus-related spills for over 40 participants.
- Field trip to mock spill event: Assisted in organizing the field trip to mock spill.

Interim Instructor, Penn State University   *April 2017*
- GEOSC 560 – Kinetics of Geological Processes: Taught basics of isotope geochemistry.

Teaching Assistant, University of Michigan   *September 2013 – December 2016*
- EARTH 100s – Multiple introduction classes of earth sciences.
- EARTH 477 – Hydrogeology: Guided 50+ students to understand the fate and transport of contaminants from Underground Storage Tanks via hands-on hydrogeological lab work and the interpretation of stratigraphic information.
- EARTH 408 – Introduction to GIS in the Earth Sciences: Taught 24 students to implement 2D & 3D spatial analysis in ArcGIS; received positive teaching evaluation (**rated at 4.5-5.0 out of 5.0**) from students and teachers.

MENTORSHIP

Updated on 04/16/2025

Awards Received by Advisees

2025   Cameron O'Neill Light (Syracuse University, B.S. Student)
            Syracuse University SOURCE Fellowship

2025   Aamna Khan (Syracuse University, B.S. Student)
            Department of Energy Mickey Leland Energy Fellowship

2021   Favour Epuna (Syracuse University, M.S.)
            GSA Graduate Student Research Grant

Postdoctoral Scholars

2024-   Ruta Basijokaite
present   Environmental Data Sciences

2024-   Sitangshu Chatterjee
present   Noble Gas Geochemistry

Graduate Students

2023-   Khi Atchinson, Ph.D. Student (Earth and Environmental Sciences), Primary
present   Advisor

2023-   Jianfeng (Nick) Su, Ph.D. Student (Earth and Environmental Sciences), Primary
present   Advisor

2022-   Zanchenling Wang, Ph.D. Student (Earth and Environmental Sciences), Primary
present   Advisor

2022-   Liyang Qin, Ph.D. Student (Earth and Environmental Sciences), Primary Advisor
present

2021-   Samuel Nesheim, M.S. (Earth and Environmental Sciences), Primary Advisor, Now
2023   Environmental Scientist at the Minnesota Pollution Control Agency

2021-   Beibei E, M.S. (Earth and Environmental Sciences), Primary Advisor, Now PhD
2023   Student at Texas A&M University

2020-   Favour Epuna, M.S. (Earth and Environmental Sciences), Primary Advisor, Now
2022   Staff Scientist at Aspect Consulting LLC

2020-   Rohit Patil, M.S. (Information Science and Data Analytics), Research Mentor, Now
2021   Software Development Engineer at Amazon

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2024-present	Raven Polk, Ph.D. Student (Earth and Environmental Sciences), Committee Member
2020-present	Madison Woodley, Ph.D. Candidate (Earth and Environmental Sciences), Committee Member
2024	Changcheng Pu, Ph.D. (Civil and Environmental Engineering), Committee Member, Now Postdoctoral Fellow at National Energy Technology Laboratory
2022-2024	Lee Frank-DePue, M.S. (Earth and Environmental Sciences), Committee Member, Now Physical Science Technician at U.S. Geological Survey
2021-2023	Angela Rienzo, M.S. (Earth and Environmental Sciences), Committee Member, Now Physical Scientist at U.S. Geological Survey
2021-2023	Abigail McCarthy, M.S. (Earth and Environmental Sciences), Committee Member
2019-2023	Jeffrey Wade, Ph.D. (Earth and Environmental Sciences), Committee Member, Now Postdoctoral Fellow at NASA Jet Propulsion Laboratory
2019-2021	Danielle Minnick, M.S. (SUNY ESF), External Committee Member, Now Data Analyst at New York State Department of Health
2019-2021	Alison Rickard, M.S. (SUNY ESF), External Committee Member, Now Hydrology Technician at UC Santa Barbara

Undergraduate Students

2025-present	Cameron O'Neill Light (Syracuse University, B.S. Student), Research Mentor Environmental Sensing and Cyberinfrastructure Development
2023-present	Ryan Olivier-Meehan (Syracuse University, B.S. Student), Research Mentor Earth Sciences and Data Analytics
2023-present	Aamna Khan (Syracuse University, B.S. Student), Research Mentor Urban Hydrology and Water Quality
2022-2023	Jenna Klein (Syracuse University, B.S.), Research Mentor, Now Environmental Scientist at AECOM
2022	Linda Arterburn (SUNY ESF, B.S.), Research Mentor, Now Ph.D. Student at Georgia Institute of Technology
2020-	Samantha Walcott (Syracuse University, B.S.), Research Mentor, Now Associate

2021   Analyst at Eversource Energy

Other Mentorship

- Graduate student mentorship at Penn State: Sam Shaheen (geospatial analysis and machine learning); Josh Woda (isotope geochemistry); Callum Wayman (GIS); Mengqi Liu (geoscience)
- Undergraduate thesis supervision at Penn State: Marcus Guarnieri (2018; groundwater geochemistry in Pennsylvania)
- Undergraduate student mentorship at University of Michigan: Guolei Han (noble gas geochemistry)

SERVICE AND PROFESSIONAL ACTIVITIES

Service to the Profession

2024-present	Mentor, Geological Society of America On To the Future Scholar Program
2024-present	Member, GSA Joint Technical Program Committee (JTPC)
2024-present	Chair, GSA Geoinformatics and Data Science Division
2023-2024	Vice Chair, GSA Geoinformatics and Data Science Division
2025-present	Member, Advisory Committee for CUAHSI (Consortium of Universities for the Advancement of Hydrologic Sciences, Inc)
2023-2025	Committee Chair, Education & Outreach Committee, CUAHSI
2021-present	University Representative, CUAHSI
2021-2025	Standing Committee, Education & Outreach Committee, CUAHSI
2023-present	Associate Editor, Applied Geochemistry
2021-2024	Guest Editor, Frontiers in Earth Science

2022	NSF Convergence Accelerator workshop: Managing Water for a Changing Planet
2020	Steering Committee for the NSF-funded workshop: Mapping a Future for Management of Low-Temperature Geochemical Data
2018-present	Steering and Organizing Committee for Shale Network Workshop
2020-present	Panelist for National Science Foundation CSSI and U.S. Department of Energy BER
2021-present	Proposal reviewer for the U.S. Department of Energy BER and ASCR, CHIST-ERA of European Union, National Science Foundation
2015-present	Manuscript Peer Reviewer, 2015 – Present: Nature Communications, Geochimica et Cosmochimica Acta, Water Resources Research, Environmental Science & Technology, Water Research, Science of the Total Environment, Chemical Geology, ACS Earth and Space Chemistry, AGU GeoHealth, Journal of Environmental Informatics, Water, Geological Society of America Today, Applied Geochemistry, Environmental Science: Processes & Impacts, Current Opinion in Environmental Science & Health, Journal of Great Lakes Research, Advances in Polar Science, Geosciences, Geoscience Data Journal, Hydrogeology Journal, Applied Computing & Geosciences, Environmental Monitoring and Assessment
2018, 2023	Judge, AGU Fall Meeting Outstanding Student Presentation Award
2018-2025	Member, Hydrologic Information System User Committee, CUAHSI
2019	Coordinator, AGU Fall Meeting Outstanding Student Presentation Award
2019	Reviewer, AGU Fall Meeting student travel grant
2018	Judge for PSU Geosciences Graduate Student Colloquium
2018	Judge for 11th Annual Postdoctoral Research Exhibition at Penn State
2015-2016	Co-founder and vice-president of AAPG student chapter at University of Michigan
2013-2015	President of USTC Alumni Association in Greater Detroit area
2018-	International and National Conference Session Convener and Workshop Organizer

present	• 2024 Goldschmidt session entitled "Rates and Dates: Advances in kinetics and applications in noble gas and thermo-geochronologic systems" • 2024 AGU Fall Meeting Town Hall entitled "Leveraging Science on Schema to Make Research Data Findable: Where Are We Now?" • 2024 Geological Society of America Annual Meeting session entitled "Quantifying and Addressing the Environmental and Health Impacts of Active, Orphaned, and Abandoned Oil & Gas Wells" • 2024 Geological Society of America Annual Meeting session entitled "Open Science, Open Data: Geoinformatics and Why it Should be on Everyone's Radar" • 2023 AGU Fall Meeting Learning Workshop entitled "End Member Mixing Analysis in Hydrogeochemistry with Case Studies" • 2023 AGU Fall Meeting Town Hall entitled "Use Case Applications for a Democratized Cyberinfrastructure for Open Discovery to Enable Research" • 2023 AGU Fall Meeting session entitled "Enhanced Rock Weathering for Carbon Dioxide Removal: From Soils to the Ocean" • 2023 Geological Society of America Annual Meeting session entitled "No Well Left Behind: Quantifying Impacts and Improving Management of Active, Abandoned, and Orphaned Oil and Gas Wells to Safeguard Air, Water, and Land Resources" • 2022 Goldschmidt session entitled "Data-driven research in geochemistry" • 2021 Geological Society of America Annual Meeting session entitled "Machine Learning for Advancing Data Analysis Toolkit in Geoscience" • 2020 Goldschmidt session entitled "Application of novel gas geochemical tools to future GeoEnergy resources Crustal Fluid Geochemistry in Energy-Related Systems: Empirical, Experimental, and Modelling Advances" • 2020 Goldschmidt session entitled "Development of Big Data Geochemical Networks and new Analysis and Visualization tools: Innovative approaches for 21st Century Multidimensional and Transdisciplinary Science" • 2019 AGU Fall Meeting session entitled "Data-Driven Discoveries in Volcanology, Geochemistry and Petrology" • 2019 AGU Fall Meeting session entitled "Data-driven approach to understand Earth system" • 2018 Goldschmidt session entitled "Using Geochemistry and Big Data to Understand the Biological-Geological Co-evolution of the Critical Zone - Including Human Impacts" • 2018 AGU Fall Meeting session entitled "Data Science and Geochemistry: Applying a Data-driven Approach in Geochemistry-centric Studies"

Service at the University and College Level

2023	Search Committee, Computational and Field Specialist
2022-	Portfolio Reviewer for the Women in Science and Engineer Future Professionals

present   Program (WiSE-FPP) Associates

2022   Reviewer for the Syracuse Office of Undergraduate Research & Creative Engagement (SOURCE) Program

2021-   Search Committee, Hydrology and Environment Search
2022

Service at the Department Level

2025   Member, Review Committee for the Inaugural Thonis Family Postdoctoral Research Fellowship

2024-   Member, Graduate Admission Committee
present

2023   Member, Research Excellence Doctoral Funding Program (REDF) Selection Committee

2022-   Faculty advisor, Undergraduate Organization of Geosciences (UGOGeo)
present

2022-   Member, Strategic Planning and Visioning Committee
2023

2021-   Member, IT Committee
2024

2020-   Member, Analytical Facilities Committee
2024

Professional Development

2020   NSF Geobiology and Low-Temperature Geochemistry Data Workshop: Mapping a Future for Management of Low-Temperature Geochemical Data, Atlanta, GA

2019   CUAHSI DIY Water Monitoring, Data Portals, and Watershed Modeling Workshop, Stroud Water Research Center, Avondale, PA

2018   83rd Annual Field Conference of Pennsylvania Geologists: the Triassic-Jurassic rift system of eastern North America, Center Valley, PA

2018   GeoDeepDive workshop 2018, UW-Madison, Madison, WI

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2018	Data Science in Geochemistry Workshop, Goldschmidt, Boston, MA
2015	Sequence Stratigraphy short course attendee, AAPG, Denver, CO
2008-2020	Field Work:

- Groundwater, surface water, stray gas, and sediment sampling within the Marcellus Shale footprint (monthly), 2017 – 2020
- Natural gas sampling in the Antrim Shale area (Gas & Oil Wells), MI (1 week), 2013 – 2014
- Groundwater sampling in the Glacial Drift aquifer in Michigan Basin (3 days), 2012
- Mountain Huangshan in Anhui, China (4 days), 2010
- Tai Lake, Chao Lake, Yancheng National Natural Reserve, China (1 month), 2008 – 2009

Outreach and Science Communication

16. Flath-Futurity, C., 2025. How will climate change affect America's rivers? Futurity. URL https://www.futurity.org/climate-change-americas-rivers-3274322/ (accessed 4.22.25).

15. Lovell, D., 2025. Diving Deep Into the Fluoride Debate [WWW Document]. SU News. URL https://news.syr.edu/blog/2025/04/10/diving-deep-into-the-fluoride-debate/ (accessed 4.16.25).

14. Tibbetts, J.H., 2025. America's Rivers May Hold a Key to Carbon Capture [WWW Document]. College of Arts & Sciences at Syracuse University. URL https://artsandsciences.syracuse.edu/earth-sciences-department/news/americas-rivers-may-hold-a-key-to-carbon-capture/ (accessed 3.17.25).

13. Baxter, S., 2025a. Monitoring Urban Creeks in Syracuse, New York. NexSens. URL https://www.nexsens.com/case_studies/monitoring-urban-creeks-in-syracuse-new-york.htm (accessed 3.10.25).

12. Baxter, S., 2025b. Monitoring Meadowbrook Creek: Real-Time Data Collection in an Urban Creek [WWW Document]. Environmental Monitor. URL https://www.fondriest.com/news/monitoring-meadowbrook-creek-real-time-data-collection-in-an-urban-creek.htm (accessed 3.10.25).

11. Wen, T., Boettiger, C., 2024. Innovations in Geo AI: Case Studies and Success Stories [WWW Document]. URL https://soundcloud.com/introductiontoopengeoai/innovations-in-geo-ai-case-studies-and-success-stories (accessed 12.13.24).

10. Bernardi, D., 2024a. Spring Disappearance and Backyard Flooding? A&S Researchers Explore if Climate Change and/or Human Intervention are to Blame [WWW Document]. College of Arts & Sciences at Syracuse University. URL https://artsandsciences.syracuse.edu/news-all/news-2024/safeguarding-a-syracuse-waterway/ (accessed 12.13.24).

9. Bernardi, D., 2024b. Creative Climate Action. Syraucse University Arts & Sciences Fall

2024 Alumni Magazine.

8. Bernardi, D., 2024c. A&S Offers More Community Learning Pathways for Arts and Sciences Undergraduates [WWW Document]. SU News. URL https://news.syr.edu/blog/2024/11/26/as-offers-more-community-learning-pathways-for-arts-and-sciences-undergraduates/ (accessed 12.13.24).

7. Dzombak, R., 2023. Elderly, low-income residents most vulnerable to groundwater pollution from fracking in Appalachia [WWW Document]. AGU Newsroom. URL https://news.agu.org/press-release/elderly-low-income-residents-most-vulnerable-to-groundwater-pollution-from-fracking-in-appalachia/ (accessed 12.13.24).

6. Newcomb, T., 2023a. America's Rivers Have Secretly Gotten So Much Saltier [WWW Document]. Yahoo News. URL https://ca.news.yahoo.com/americas-rivers-secretly-gotten-much-165000410.html (accessed 12.13.24).

5. Newcomb, T., 2023b. America's Rivers Have Secretly Gotten So Much Saltier [WWW Document]. Popular Mechanics. URL https://www.popularmechanics.com/science/environment/a44579026/why-have-american-rivers-gotten-more-salty/ (accessed 12.13.24).

4. Bernardi, D., 2023. A Machine Learning Approach to Freshwater Analysis [WWW Document]. SU News. URL https://news.syr.edu/blog/2023/07/06/a-machine-learning-approach-to-freshwater-analysis/ (accessed 12.13.24).

3. Staff, N., 2022. Geochemist Receives NSF Grant for Work in Developing Search Engines for Climate Change Data [WWW Document]. SU News. URL https://news.syr.edu/blog/2022/11/04/geochemist-receives-nsf-grant-for-work-in-developing-search-engines-for-climate-change-data/ (accessed 12.13.24).

2. Bernardi, D., 2021a. When It Comes to the Environmental Impact of Hydrofracking vs. Conventional Gas/Oil Drilling, Research Shows the Differences May Be Minimal [WWW Document]. SU News. URL https://news.syr.edu/blog/2021/07/14/when-it-comes-to-the-environmental-impact-of-hydrofracking-vs-conventional-gas-oil-drilling-research-shows-the-differences-may-be-minimal/ (accessed 12.13.24).

1. Bernardi, D., 2021b. Hydrofracking environmental problems not that different from conventional drilling [WWW Document]. EurekAlert! URL https://www.eurekalert.org/news-releases/756808 (accessed 12.13.24).

CONFERENCE PRESENTATIONS, COLLOQUIA, AND SEMINARS

[†] = Postdoc author, directly supervised by Wen at time of publication
[††] = Graduate student author, directly supervised by Wen at time of publication
[†††] = Undergraduate student author, directly supervised by Wen at time of publication
[§] = Student or postdoc author of collaborator at time of publication

2025

101. **Wen, T.**, Bridging Interdisciplinary Data and Machine Learning to Advance Understanding

of Catchment Elemental Cycles in Coupled Human and Natural Systems. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology and Geochemistry, Andover, NH, 05/2025. [**Invited Talk**]

100. Baka, J., Brantley, S.L., Warner, N.R., **Wen, T.**, Fenske, A., Su, J., Williams, L., Forsythe, B., Pinto, C., Bitzer, Z. and Mahugu, E.W., An Analysis of Water Quality in the Oldest Hydrocarbon Basin in the USA. Health Effects Institute Annual Conference, Austin, TX, 05/2025. [Poster]

99. **Wen, T.**, Bridging Interdisciplinary Data and Machine Learning to Illuminate Carbon Cycles in Land-Water Systems. Centre de recherche GEOTOP, Canada, 04/2025. [**Invited Talk**]

98. **Wen, T.**, Assessing Environmental Impacts of Orphaned Oil and Gas Wells on Water Quality. American Association for the Advancement of Science Center for Scientific Evidence in Public Issues, 03/2025. [**Invited Talk**] [Virtual]

97. **Wen, T.**, Bridging Interdisciplinary Data and Machine Learning to Illuminate Carbon Cycles in Land-Water Systems. Eastern Institute of Technology, Ningbo, China, 02/2025. [**Invited Talk**] [Virtual]

2024

96. ††Wang, Z. and **Wen, T.**, A Data-driven End-Member Mixing Analysis Tool Inspired by Convex Geometry for Geoscience. AGU Annual Meeting, Washington, D.C., 12/2024. [Oral]

95. ††Qin, L., Zhang, S. and **Wen, T.**, Predicting Riverine Sulfate Fluxes Across the United States Using Machine Learning. AGU Annual Meeting, Washington, D.C., 12/2024. [Poster]

94. §Sun, X., ††Wang, Z., Suhrhoff, T., Kemeny, P., Castronova, A., **Wen, T.**, and Zhang, S., Evaluating Inverse Modeling Approaches for Rock Weathering Analysis. AGU Annual Meeting, Washington, D.C., 12/2024. [Poster]

93. †††Olivier-Meehan, R., Prabhu, A. and **Wen, T.**, Using Network Analysis of Benthic Macroinvertebrates to Unravel the Effect of Oil and Gas Production on River Ecosystem Health. AGU Annual Meeting, Washington, D.C., 12/2024. [Poster]

92. †Basijokaite, R., Lackey, G., Kang, M. and **Wen, T.**, Exploring Relationships Between Unconventional, Marginal, Orphaned Oil and Gas Wells and Water Quality in United States. AGU Annual Meeting, Washington, D.C., 12/2024. [Poster]

91. **Wen, T.**, E, B., Zhang, S., Driscoll, C. and Carter, E., Quantifying continental-scale silicate weathering fluxes and coupled human-natural impacts using machine learning techniques. Goldschmidt, Chicago, IL, 08/2024. [Poster]

90. Shaheen, S., **Wen, T.**, Roden, E. and Brantley, S., Understanding methane reactivity in the critical zone using abandoned oil and gas wells. Goldschmidt, Chicago, IL, 08/2024. [Oral]

89. **Wen, T.**, From Fossil Fuel Industry to the Global Carbon Cycle: A Multidisciplinary Approach to Assess the Human-Carbon-Climate Interactions. Syracuse University, Syracuse, NY, 04/2024. [**Invited Seminar**]

88. Baka, J., §Shaheen, S., **Wen, T.**, §Harrington, O., Xue, L. and Brantley, S.L., Unconventional Oil/Gas Development, Water Quality, and Environmental Hazards in the Oldest Hydrocarbon Basin in the US. Health Effects Institute Annual Conference, Philadelphia, PA, 04/2024. [Poster]

87. **Wen, T.**, A Multidisciplinary Approach to Assess the Interplay of Human, Carbon, and Climate Dynamics in Watersheds Facing Salinization. Toronto Metropolitan University, Toronto, Canada, 04/2024. [**Invited Colloquium**] [Virtual]

86. **Wen, T.**, Multidisciplinary Insights into Human, Carbon, and Climate Dynamics Across Natural and Altered Systems. University at Albany, Albany, NY, 03/2024. [**Invited Colloquium**]

85. **Wen, T.**, Multidisciplinary Insights into Human, Carbon, and Climate Dynamics Across Natural and Altered Systems. Queen's University, Kingston, Canada, 03/2024. [**Invited Colloquium**]

84. **Wen, T.**, Multidisciplinary Insights into Human, Carbon, and Climate Dynamics Across Natural and Altered Systems. International Professional Association of Chinese Earth Scientists, 03/2024. [**Invited Seminar**] [Virtual]

2023

83. **Wen, T.**, Liu, R., Pinti, D.L. Hao, F., Xu, S., Shu, Z. and Xu, L., Noble Gas Geochemistry Documenting Spatiotemporal Variation in Tectonic Deformation of the Upper Yangtze Block. AGU Fall Meeting, San Francisco, CA, 12/2023. [Poster]

82. Kang, M., Boutot, J., McVay, R.C., Roberts, K., Jasechko, S., Perrone, D., **Wen, T.**, Lackey, G., Raimi, D., Digiulio D.C., Shonkoff, S.B., Carey, J.W., Elliott, E.G., Vorhees, D.J. and Peltz, A., Environmental risks and opportunities of orphaned oil and gas wells in the United States. AGU Fall Meeting, San Francisco, CA, 12/2023. [Poster]

81. ††Nesheim, S., Yu, Z., Tuttle, S. and **Wen, T.**, Evaluating Impacts of A Cemetery on Urban Water Quality in A Headwater Watershed with Various Human-Built Infrastructure. AGU Fall Meeting, San Francisco, CA, 12/2023. [Poster]

80. **Wen, T.**, ††E, B., Zhang, S. and Carter E., Data-Driven Assessment of Human and Natural Impacts on Future Alkalinity Fluxes of U.S. Freshwater under Changing Climate. AGU Fall Meeting, San Francisco, CA, 12/2023. [Poster]

79. Shaheen, S., **Wen, T.**, Baka, J. and Brantley, S., Wastewater spills during shale gas development as a driver of increased groundwater salinity. GSA Annual Meeting, Pittsburgh, PA, 10/2023. [Oral]

78. **Wen, T.**, Kang, M., Shaheen, S., Brantley, S. and Baka, J., Groundwater quality assessment around orphaned and unconventional oil and gas wells in the United States. GSA Annual Meeting, Pittsburgh, PA, 10/2023. [Oral]

77. Harrington, O., Shaheen, S., **Wen, T.**, Brantley, S. and Baka, J., Something in the water? Analyzing community and geoscientific knowledge of the energy-water-health nexus in southwestern Pennsylvania. GSA Annual Meeting, Pittsburgh, PA, 10/2023. [Oral]

76. Kang, M., Boutot, J., McVay, R.C., Roberts, K., Jasechko, S., Perrone, D., **Wen, T.**, Lackey,

G., Raimi, D., Digiulio D.C., Shonkoff, S.B., Carey, J.W., Elliott, E.G., Vorhees, D.J. and Peltz, A., Environmental risks and opportunities of orphaned oil and gas wells in the United States. GSA Annual Meeting, Pittsburgh, PA, 10/2023. [Oral]

75. **Wen, T.**, Exploring Human-Carbon-Climate Interactions: A Multidisciplinary Approach Bridging Fossil Fuels and the Global Carbon Cycle. Michigan State University, East Lansing, MI, 10/2023. [**Invited Colloquium**]

74. **Wen, T.**, Exploring Human-Carbon-Climate Interactions: A Multidisciplinary Approach Bridging Fossil Fuels and the Global Carbon Cycle. USGS New York Water Science Center, Troy, NY, 10/2023. [**Invited Seminar**]

73. §Shaheen, S., **Wen, T.**, Lloyd, M., House, C., Roden, E. and Brantley, S.L., Biogeochemical aquifer changes driven by methane migration from leaking oil and gas wells: observations from laboratory to field. Goldschmidt, Lyon, France, 07/2023. [Oral]

72. **Wen, T.**, A Data-driven Perspective on Carbon Fluxes from Land Water Systems. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology and Geochemistry, Andover, NH, 06/2023. [Poster]

71. §Shaheen, S., **Wen, T.**, §Harrington, O., Xue, L., Brantley, S.L. and Baka, J., Using Geoscientific Analysis and Community Engagement to Analyze Exposure to Potential Groundwater Contamination Related to Hydrocarbon Extraction in Southwestern Pennsylvania. Health Effects Institute Annual Conference, Boston, MA, 05/2023. [Poster]

70. **Wen, T.**, From Fossil Fuel Industry to the Global Carbon Cycle: A Multidisciplinary Approach to Assess the Human-Carbon-Climate Interactions. University of Arizona, Tucson, AZ, 04/2023. [**Invited Colloquium**]

69. **Wen, T.**, From Fossil Fuel Industry to the Global Carbon Cycle: A Multidisciplinary Approach to Assess the Human-Carbon-Climate Interactions. University of California Riverside, Riverside, CA, 03/2023. [**Invited Colloquium**]

68. ††Nesheim, S., †††Klein, J., Zhi, W. and **Wen, T.**, Exploring the impacts of cemeteries on urban surface water quality in Syracuse, New York. GSA Northeastern Section Meeting, Reston, VA, 03/2023. [Poster]

67. ††E, B., Zhang, S. and **Wen, T.**, Developing machine learning models to assess anthropogenic impacts on U.S. freshwater salinization syndrome. GSA Northeastern Section Meeting, Reston, VA, 03/2023. [Oral]

66. †††Klein, J., ††Nesheim, S. and **Wen, T.**, Evaluating impacts of cemeteries on surface water quality in the Finger Lakes watershed. GSA Northeastern Section Meeting, Reston, VA, 03/2023. [Poster]

2022

65. Brantley, S.L., §Shaheen, S., **Wen, T.** and Bake, J., Water Quality Impacts from Shale-gas Development: from Case Study to Statistical Analysis and from Pennsylvania to the USA. AGU Fall Meeting, Chicago, IL, 12/2022. [Poster]

64. §Shaheen, S., **Wen, T.**, Sharifironizi, M., House, C., Roden, E. and Brantley, S.L., Water Quality Impacts and Hydrogeologic Methane Migration Pathways from Aging Oil and Gas

Wells. AGU Fall Meeting, Chicago, IL, 12/2022. [Poster]

63. **Wen, T.**, Using Machine Learning Approaches to Address Carbon Cycling-Related Questions, Central New York Association of Professional Geologists, Syracuse, NY, 12/2022. [**Invited Seminar**]

62. Shaheen, S, **Wen, T.** and Brantley S.L., Increased Brine Salt Concentrations in Pennsylvania Groundwater Indicate Potential Wastewater Impacts During Unconventional Oil & Gas Development. SETAC North America 43rd Annual Meeting, Pittsburgh, PA, 11/2022. [Oral]

61. **Wen, T.**, Addressing Carbon Cycling-related Questions Using Machine Learning Approaches, University of Science and Technology of China, Hefei, China, 10/2022. [**Invited Seminar**] [Virtual]

60. **Wen, T.**, Addressing Water and Soil Geochemistry Questions Using Data-driven Approaches. GSA Annual Meeting, Denver, CO, 10/2022. [**Invited Talk**]

59. Zhang, S. and **Wen, T.**, Mapping Silicate Weathering Flux with Coupled Machine Learning Techniques. GSA Annual Meeting, Denver, CO, 10/2022. [Oral]

58. **Wen, T.**, The Shale Network and Soil Profile Chemistry Databases. Pre-GSA Workshop on Geoinformatics and Data Lab Management, Denver, CO, 10/2022. [Oral]

57. **Wen, T.**, A High-throughput Cloud-based Open-Source Platform for Monitoring Stream Water Quality. Earth Science Information Partners, Pittsburgh, PA, 07/2022. [Poster]

56. **Wen, T.**, §Chen, C., Bandstra, J. and Brantley, S.L., Developing a Physics-Informed Neural Network to Predict Soil Reaction Fronts. Goldschmidt, Honolulu, HI, 07/2022. [Poster]

55. Liu, R., **Wen, T.**, Xu, L. and Hao, F., Extensive tectonic-triggered hydrocarbon expulsion from the Paleozoic shale in the Yangtze Block, South China: Insights from noble gas geochemistry. Goldschmidt, Honolulu, HI, 07/2022. [Poster]

54. Carter, E., Hultquist, C. and **Wen, T.**, GRRIEn Framework: a data science cheat sheet for earth scientists working at large spatial scales. Frontiers in Hydrology Meeting, San Juan, Puerto Rico, 06/2022 [Oral]

53. ††Epuna, F. and **Wen, T.**, Assessing Impact of Unconventional Oil and Gas Development on Groundwater Quality in the Northern Appalachian Region with Mixed Land Uses. Shale Network Workshop, University Park, PA, 05/2022. [Poster]

52. ††Epuna, F. and **Wen, T.**, Evaluating the Impact of Unconventional Oil and Gas Drilling on Groundwater Quality in the Appalachian Basin With Mixed Land Uses. GSA Northeastern Section Meeting, Lancaster, PA, 03/2022. [Oral]

2021

51. §Shaheen, S., Sharifironizi, M., **Wen, T.** and Brantley, S.L., Anaerobic Oxidation of Methane Influences the Mobility of Redox-Active Contaminants in Aquifers Impacted by Leaking Oil and Gas Wells. AGU Fall Meeting, New Orleans, LA, 12/2021.

50. **Wen, T.**, §Chen, C., Zheng, G., Bandstra, J. and Brantley, S.L., Using a Physics-Based Model Guided Neural Network to Predict Soil Reaction Fronts. GSA Annual Meeting, Portland, OR, 10/2021. [Virtual]

49. **Wen, T.**, Tools for Data Management nd Data Synthesizing in Hydrogeochemistry and Watershed Science Research. CUAHSI Cyber Seminar, 10/2021. [**Invited Talk**] [Virtual]

48. **Wen, T.**, Shale Network Database: Data Bring Energy Stakeholders Together. CUAHSI Biennial Colloquium, 07/2021. [Virtual]

47. Liu, R., **Wen, T.**, Jiang, D., Hao, F., Han, G. and Castro M.C. Co-evolution of tectonic deformation and noble gas geochemistry in shale: an inside-out view of the Sichuan Basin. Developments in Noble Gas Understanding and Expertise VII, 07/2021. [Virtual]

46. §Shaughnessy, A., **Wen, T.** and Brantley S.L., Water Flowpath and Source Chemistry Control C-Q Relationships Across Spatial Scales. Goldschmidt, Lyon, France, 07/2021. [Virtual]

45. **Wen, T.**, Detecting Hydrocarbon Production Related Water Impairments: A Data-driven Approach Using Large Water Quality Datasets. NETL Well Integrity Workshop, Pittsburgh, PA, 05/2021. [**Invited Seminar**] [Virtual]

44. **Wen, T.**, Niu, X. and Brantley, S.L., Stream sulfate concentrations decrease as U.S. power plants shift from coal to shale gas. Shale Network Workshop, University Park, PA, 05/2021. [Poster]

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43. §Shaughnessy, A.R., §Forgeng, M., Xin, G., **Wen, T.**, §Shaheen, S. and Brantley, S.L., Water Flowpath and Bedrock Geology Control Pyrite Weathering Across Spatiotemporal Scales. AGU Fall Meeting, San Francisco, CA, 12/2020. [Virtual]

42. Brantley, S.L., **Wen, T.**, §Shaheen, S. and §Shaughnessy, A.R., Exploring Societal Problems with Data: Assessing Impacts on Water Quality with the Shale Network Database. AGU Fall Meeting, San Francisco, CA, 12/2020. [Virtual]

41. §Shaheen, S., **Wen, T.**, Herman, A. and Brantley, S.L., Investigating the sources and extent of groundwater contamination in areas of extensive oil, gas, and coal extraction using data mining. AGU Fall Meeting, San Francisco, CA, 12/2020. [Virtual]

40. **Wen, T.**, Using Small Data and Big Data to Assess the Impact of Shale Gas Drilling on Water Quality. Zhejiang University, Hangzhou, China, 09/2020. [**Invited Seminar**] [Virtual]

39. Liu, R., **Wen, T.**, Zheng, J. and Hao, F., Noble Gas Geochemistry in the Wufeng-Longmaxi Shale of the Southern Sichuan Basin, China. Goldschmidt, Honolulu, HI, 06/2020. [Virtual]

38. **Wen, T.**, §Liu, M., Li, Z. and Brantley, S.L., Using Big Groundwater Data to Detect Methane Contamination in Water within Hydrocarbon Production Areas Across the United States. Goldschmidt, Honolulu, HI, 06/2020. [Virtual]

37. **Wen, T.**, §Liu, M., Li, Z. and Brantley, S.L., A machine learning-based ensemble model to detect methane contamination in groundwater within hydrocarbon production areas across the United States. AGU Fall Meeting, San Francisco, CA, 12/2019. [Poster]

36. **Wen, T.**, Niu, X, §Shaughnessy, A.R. and Brantley, S.L., Ensuring reusability of water quality data: what have we learned as both data users and providers? AGU Fall Meeting, San Francisco, CA, 12/2019. [**Invited Talk**]

35. §Agarwal, A., **Wen, T.**, §Chen, A., Xue, L. and Brantley, S.L., GeoNet: An automated geochemical network analysis with application to detecting stream water contamination. Annual Conference of the International Association for Mathematical Geosciences, State College, PA, 08/2019. [Oral]

34. **Wen, T.**, Using Small Data and Big Data to Assess the Impact of Shale Gas Drilling on Water Quality. Kansa Geological Survey of the University of Kansas, Lawrence, KS, 04/2019. [**Invited Colloquium**]

33. **Wen, T.**, Using Small Data and Big Data to Assess the Impact of Shale Gas Drilling on Water Quality. Syracuse University, Syracuse, NY, 04/2019. [**Invited Colloquium**]

32. **Wen, T.**, Using Small Data and Big Data to Assess the Impact of Shale Gas Drilling on Water Quality. Saint Francis University, Loretto, PA, 03/2019. [**Invited Seminar**]

31. **Wen, T.**, Liu, M., Woda, J., Zheng, G., Niu, X., Gonzales, M., Hall, C., Nicot, J.-P., Castro., M.C., Li, Z. and Brantley, S.L., Using Big Data and Small Data (Noble Gases) to Assess the Impact of Shale Gas Drilling on Water Quality. National Groundwater Association Workshop: Groundwater and Oil and Gas Development, San Antonio, TX, 03/2019. [Oral]

30. **Wen, T.**, §Liu, M., §Woda, J., §Zheng, G., Li, Z. and Brantley, S.L., Detecting anomalous methane in groundwater in shale gas production areas using big data. AGU Fall Meeting, Washington, D.C., 12/2018. [Poster]

29. Brantley, S.L., **Wen, T.**, Li, Z., §Liu, M., §Zheng, G., Herman, A., Gonzales, M., §Woda, J. and Niu, X., Using Big Data (and Little Data) to Understand the Effects of Shale Gas Development on Water Quality. AGU Fall Meeting, Washington, D.C., 12/2018. [**Invited Talk**]

28. §Woda, J., **Wen, T.**, Lemon, J., Keeports, C., Zelt, F.B. and Brantley, S.L., Using citizen science and stream methane to locate and understand hydrocarbon-related contaminant sources in Pennsylvania. AGU Fall Meeting, Washington, D.C., 12/2018. [Oral]

27. **Wen, T.**, §Zheng, G., Niu, X., §Liu, M., Li, Z. and Brantley, S.L., Using Geochemistry Data to Identify Groundwater Quality Issues in Shale Gas Production Area. Health Effects Institute Energy Research Program Workshop, Austin, TX, 09/2018. [**Invited Talk**]

26. **Wen, T.**, §Liu, M., §Zheng, G., Brantley, S.L. and Li, Z., Using Machine Learning to Detect Anomalous Methane in Groundwater within Shale Gas Production Areas. Goldschmidt, Boston, MA, 08/2018. [Poster]

25. Brantley, S.L., **Wen, T.**, Niu, X., §Zheng, G., Gonzales, M. and Li, Z., Using Big Groundwater Data to Understand Regional Water Chemistry. Goldschmidt, Boston, MA, 08/2018. [Poster]

24. §Woda, J., **Wen, T.** and Brantley, S.L., Distinguishing Recent Methane Migration into Groundwater from Natural Methane Sources in the Marcellus Gas Play. Goldschmidt, Boston, MA, 08/2018. [Oral]

23. **Wen, T.**, Niu, X., Pollak, J., Brazil, L., Li, Z. and Brantley, S.L., Using Shale Network Database to Assess the Water Quality Data in Marcellus Shale Area. UCOWR-NIWR Annual Water Resources Conference, Pittsburgh, PA, 06/2018. [**Invited Talk**]

22. **Wen, T.**, A Multi-disciplinary and Multi-stakeholder Framework to Evaluate

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Environmental Impacts of Shale Gas Production. Energy Days Conference, University Park, PA, 05/2018. [Oral]

21. **Wen, T.**, §Liu, M., §Zheng, G., Niu, X., Gonzales, M., §Woda, J., Li, Z. and Brantley, S.L., Applying machine learning in water quality data: implication for controlling factors and occurrence time of elevated methane in groundwater. Shale Network Workshop, University Park, PA, 05/2018. [Poster]

20. **Wen, T.**, §Zheng, G., §Liu, M., Niu, X., Gonzales, M., §Woda, J., Li, Z. and Brantley, S.L., Applying Machine Learning to Detect Anomalous Methane in Groundwater. PA Groundwater Symposium, State College, PA, 05/2018. [Oral]

19. **Wen, T.**, Niu, X., Gonzales, M., Li, Z. and Brantley, S.L., Applying Data Mining Techniques to Chemical Analyses of Pre-drill Groundwater Samples within the Marcellus Formation Shale Play in Bradford County, Pennsylvania. AGU Fall Meeting, New Orleans, LA, 12/2017. [Poster]

18. Pinti, D.L., **Wen, T.**, Castro, M.C., López-Hernández, A., Hall, C.M., Shouakar-Stash, O. and Sandoval-Medina, Using noble gases and $^{87}Sr/^{86}Sr$ to constrain heat sources and fluid evolution at the Los Azufres Geothermal Field, Mexico. AGU Fall Meeting, New Orleans, LA, 12/2017. [Poster]

17. **Wen, T.**, Castro, M.C., Nicot, J.P., Hall, C.M., Pinti, D.L., Mickler, P., Darvari, R. and Larson, T., Barnett Shale or Strawn Group: Identifying the Source of Stray Gas through Noble Gases in the Trinity Aquifer, North-Central Texas. AGU Fall Meeting, New Orleans, LA, 12/2017. [Oral]

16. **Wen, T.**, Niu, X., Gonzales, M., Li, Z. and Brantley, S.L., Using Data Mining Techniques to Assess Water Quality within the Marcellus Shale Play. Geochemistry Forum, State College, PA, 12/2017. [Oral]

15. Brantley, S.L., Gonzales, M., Guarnieri, M., Niu, X., **Wen, T.** and Li, Z., Investigating Chemical Analyses of Ground Waters Sampled by Shale-gas Industry Consultants Before Gas-well Drilling in Pennsylvania. Pennsylvania Groundwater Symposium, State College, PA, 05/2017. [Oral]

14. **Wen, T.**, Castro, M.C., Nicot, J.P., Hall, C.M., Larson, T., Mickler, P. and Darvari, R., Methane Sources and Migration Mechanisms in the Shallow Trinity Aquifer in Parker and Hood Counties, Texas – a Noble Gas Analysis. Shale Network Workshop, University Park, PA, 05/2017. [Poster]

13. **Wen, T.**, Pinti, D.L., Castro, M.C., Hall, C.M., Shouakar-Stash, O. and López-Hernández, A., Fluids in the Los Azufres Geothermal Field, Mexico traced by noble gas isotopes and $^{87}Sr/^{86}Sr$. GAC-MAC Meeting, Kingston, Canada, 05/2017. [Poster]

12. **Wen, T.**, Development of noble gas techniques to fingerprint shale gas and to trace hydrocarbons in groundwater. China University of Geosciences, Wuhan, China, 03/2017. [Invited, Oral]

11. **Wen, T.**, Castro, M.C., Nicot, J.P., Hall, C.M., Mickler, P. and Darvari, R., Methane Sources and Migration Mechanisms in the Shallow Trinity Aquifer in Parker and Hood Counties, Texas – a Noble Gas Analysis. AGU Fall Meeting, San Francisco, CA, 12/2016.

[Oral]

10.   **Wen, T.**, Castro, M.C., Nicot, J.P., Hall, C.M., Larson, T., Mickler, P. and Darvari, R., Methane Sources and Migration Mechanisms in the Shallow Trinity Aquifer in Parker and Hood Counties, Texas – a Noble Gas Analysis. AIPG Michigan Section, Ann Arbor, MI, 12/2016. [Poster]

9.   Castro, M.C., **Wen, T.**, Nicot, J.P., Hall, C.M., Mickler, P. and Darvari, R., Methane Sources in Shallow Groundwaters in Parker and Hood Counties, Texas – A Heavy Noble Gas Analysis. Goldschmidt, Yokohama, Japan, 06/2016. [Oral]

8.   **Wen, T.**, Castro, M.C., Nicot, J.P., Hall, C.M., Mickler, P. and Darvari, R., Identifying the Sources of Methane in Shallow Groundwaters in South-central Texas through Noble Gas Signatures. AAPG ACE, Calgary, Canada, 06/2016. [Oral]

7.   **Wen, T.**, Castro, M.C., Ellis, B.R., Hall, C.M. and Lohmann, K.C., Assessing Compositional Variability and Migration of Natural Gas in Antrim Shale in the Michigan Basin Using Noble Gas Geochemistry. AGU Fall Meeting, San Francisco, CA, 12/2015. [Poster]

6.   Castro, M.C., **Wen, T.**, Nicot, J.P., Hall, C.M., Mickler, P. and Darvari, R., Identifying the Sources of Methane in Shallow Groundwaters in Parker and Hood Counties, Texas through Noble Gas Signatures. AGU Fall Meeting, San Francisco, CA, 12/2015. [Oral]

5.   **Wen, T.**, Castro, M.C., Ellis, B.R. and Hall, C.M., Using Noble Gases to Assess the Compositional Variability and Sources of Natural Gas in the Antrim Shale, Michigan Basin, USA. AAPG Eastern Section Meeting, Indianapolis, IN, 09/2015. [Poster]

4.   **Wen, T.**, Castro, M.C., Ellis, B.R., Hall, C.M., Lohmann, K.C. and Bouvier, L., Assessing the Compositional Variability and Migration of Natural Gas in Antrim Shale in the Michigan Basin Using Noble Gas Geochemistry. AAPG ACE, Denver, CO, 06/2015. [Oral]

3.   **Wen, T.**, Castro, M.C., Ellis, B.R., Hall, C.M., Lohmann, K.C. and Bouvier, L., Noble Gas Signatures in Antrim Shale Gas in the Michigan Basin-Assessing Compositional Variability and Transport Processes. AGU Fall Meeting, San Francisco, CA, 12/2014. [Poster]

2.   **Wen, T.**, Castro, M.C. and Hall, C.M., Constraining Groundwater Flow in the Michigan Basin Through Helium Concentrations and Isotopic Ratios in the Saginaw Aquifer, Southern Michigan. AGU Fall Meeting, San Francisco, CA, 12/2012. [Poster]

1.   **Wen, T.**, Liu, X. and Sun, L., Variations of $\delta^{15}N$ values in ornithogenic sediments on tropical Dongdao Island of South China Sea and their influencing factors. The 18th International Conference on Environmental Indicators, Hefei, China, 2010. [Poster]