JULIA PERDRIAL

ASSOCIATE PROFESSOR OF GEOCHEMISTRY

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EDUCATION

01/2008 **PhD in Physics, Chemistry and Biology of the Environment,**
Université Louis Pasteur, Strasbourg, France. Advisor: Prof. Laurence Warr (CNRS-France, University of Greifswald, Germany). “Hydration of swelling clays and bacteria interaction - An experimental in-situ reaction study”.

07/2004 **MS (Diploma) in Mineralogy, Geology and Geochemistry,**
Ruprecht Karls University of Heidelberg, Germany. Advisor: Laurence Warr. “Low temperature mineral alteration in fault zones of the Lizard Ophiolite Complex, SW-England”.

APPOINTMENTS

2019 - current	Associate Professor of Geochemistry, University of Vermont
2022 - current	Director of the Geosciences Program (CAS), University of Vermont
2017 - 2019	Co-Director of the Environmental Science Program (CAS), University of Vermont
2013 - 2019	Assistant Professor of Geochemistry, University of Vermont
2012 - 2013	Assistant Research Scientist, University of Arizona
2010 - 2012	Postdoctoral Research Associate, University of Arizona
2008 - 2009	Visiting Postdoctoral Scholar, University of Arizona
2007 - 2008	Graduate Research Assistant, Ernst Moritz Arndt University, Germany

RESEARCH INTERESTS

Transdisciplinary approaches in Earth surface processes (i.e. Critical Zone processes) combining data-based patterns and process observations from lab and field, including water quality, carbon dynamics, catchment hydrology and biogeochemistry, biotic and abiotic primary and secondary mineral alteration and weathering, clay mineralogy, and general environmental geochemistry. Team science and values of equity, diversity and community in scientific approaches, communication, and education.

RECENT FUNDING (see full list on page 7-9)

- $49,940- **Lead-PI**. GUND catalyst award, 2022-2024 “Intersections between the climate crises, environmental racism, and STEM education: co-creating culturally relevant teacher education in Jackson, MS”.
- $99,910- **Co-PI**. NSF- Convergence accelerator, 2022-2023 “Conference: Water for a changing planet: Rethinking land use and water supply in the face of population growth and climate breakdown”.
- $3,408,589- **Lead-PI**. NSF- EAR, (total $4,684,484). 2020-2025 “Collaborative Research: Network Cluster: Using Big Data approaches to assess ecohydrological resilience across scales”.
- $54,717- **Lead-PI**. NSF-EAR, Supplement to subaward “Collaborative Research: Network Cluster: Using Big Data approaches to assess ecohydrological resilience across scales”,

LEADERSHIP IN DIVERSITY, EQUITY, AND INCLUSION WORK

- Lead PI of the education and outreach program of CZCN “Partners for the co-development of education programming in Earth and Data Science”, a growing collaboration between JSU and UVM faculty in research and teaching (2020 - ongoing).

- Lead PI of “Community Voices for Water Education”, a community education and networking program at Jackson State University 2023-2024.
- Interim co-chair of the GUND diversity committee 2022-2023.
- Co-Lead of Geology/GUND Unlearning Racism in the Geoscience Pod (2021)
- Lead of the book club “White Fragility-why it’s so hard for White people to talk about racism” for graduate students and faculty in Geology (2020 - 2022).
- Invited speaker at the Diversity and Advocacy Council (DAC) in the USGS New England Water Science Center (05/07/2021).

PUBLICATION - HIGHLIGHTS

Italics **=** *undergraduate &* ***graduate*** *student authors*

Recent articles with high impact factor:

Li, L., Zhi, W., Ng, C., Knapp, J., **Perdrial, J**., Sullivan, P. 2024. River Water Quality in a Changing Climate, Nature Climate Change. https://doi.org/10.1038/s41558-023-01923-x.

Perdrial, J.N., Wheaton, D., Kincaid, D., Seybold, E., ***Stewart, B.,*** Chorover, J. Blouin, M. Walls, L. (2023). Equity, diversity, and community as the basis for cutting edge Critical Zone (CZ) science and education. Earth's Future. 11 (2) http://dx.doi.org/10.1029/2022EF002812 **.**

Featured in EOS:

Underwood KL, Rizzo DM, Hanley JP, ***Sterle G***, Harpold AA, ***Adler T***, Li L, Wen H, **Perdrial, J.N**. 2023. Machine-Learning Reveals Equifinality in Drivers of Stream DOC Concentration at Continental Scales. Water Resources Research. 59 (3). https://doi.org/10.1029/2021WR030551.

Editor’s choice award:

Kincaid D, Seybold EC, Adair C, Bowden WB, **Perdrial, J.N**., ***Vaughan MCH,*** Schroth AW (2020) Land Use and Season Influence Event-scale Nitrate and Soluble Reactive Phosphorus Exports and Export Stoichiometry from Headwater Catchments. Water Resources Research. 56(10). https://doi.org/10.1029/2020WR027361.

PUBLICATIONS

1. Kincaid, D.W, Underwood, K.L., Hamshaw, S.D., Li, L., Seybold, E.C., ***Stewart, B***., Rizzo, D.M., ***Ul Haq, I***., **Perdrial, J.N.** (accepted). Solute Export Patterns Across the Contiguous United States. Hydrological processes.

2. ***B. Stewart***, J.B. Shanley, S. Matt, E.C. Seybold, D.W. Kincaid, ***A. Vierbicher, B. Cable, N.M. Hicks***, **J.N. Perdrial**, and L. Li (accepted). Illuminating the "invisible": Substantial Deep Respiration and Lateral Export of Dissolved Carbon from Beneath Soil. Water Resources Research.

3. Li, L., Zhi, W., Ng, C., Knapp, J., **Perdrial, J**., Sullivan, P. 2024. River Water Quality in a Changing Climate, Nature Climate Change. 14, 225–237. https://doi.org/10.1038/s41558-023-01923-x.

4. ***Sterle G,*** **Perdrial, J.N**., Li L, Adler T, Underwood K, Rizzo D, Wen H, Addor N, Newman A, Harpold A (2024) CAMELS-Chem: Stream Water Chemistry and Attributes to Facilitate Large Sample Studies. Hydrology and Earth System Sciences. https://doi.org/10.5194/hess-2022-81 .

5. ***Ijaz Ul Haq***, Byung Suk Lee, Donna M. Rizzo, **J.N. Perdrial** (2024). An Automated Machine Learning Approach for Detecting Anomalous Peak Patterns in Time Series Data from a Research

Watershed in the Northeastern United States Critical Zone. Machine Learning with Applications. https://doi.org/10.48550/arXiv.2309.07992.

6. **Perdrial, J.N**., Wheaton, D., Kincaid, D., Seybold, E., ***Stewart, B.,*** Chorover, J. Blouin, M. Walls, L. (2023). Equity, diversity, and community as the basis for cutting edge Critical Zone (CZ) science and education. Earth's Future. 11 (2) http://dx.doi.org/10.1029/2022EF002812.

7. ***Lancellotti, B. V.,*** K. L. Underwood, **Perdrial, J.N**., C. Adair, A. W. Schroth and E. Roy 2023. "Complex Drivers of Riparian Soil Oxygen Variability Revealed Using Self-Organizing Maps. Water Resources Research. 59 (6). https://doi.org/10.1029/2022WR034022.

8. ***Ruckhaus, M.,*** **Perdrial, J.N**., Underwood, K.L., ***Stewart, B.,*** Kincaid, D., Seybold, E., Li, L., Shanley, J., 2023. Disentangling the separate and intersecting pathways of soil and stream water carbon and nitrogen in response to atmospheric drivers. Frontiers in Water. 5. https://doi.org/10.3389/frwa.2023.1065300.

9. Underwood KL, Rizzo DM, Hanley JP, ***Sterle G***, Harpold AA, ***Adler T***, Li L, Wen H, **Perdrial, J.N**. 2023. Machine-Learning Reveals Equifinality in Drivers of Stream DOC Concentration at Continental Scales. Water Resources Research. 59 (3). https://doi.org/10.1029/2021WR030551.

10. ***Ryan, K., Adler, T.,*** Chalmers, A., **Perdrial, J.N**., Sebestyen, S., Shanley, J., Stubbins, A., (2022). Optical quality properties of dissolved organic matter in throughfall and stemflow vary across tree species and season in a temperate headwater forest. Biogeochemistry. 164. https://doi.org/10.1007/s10533-022-00985-x.

11. ***Juice SM,*** Schaberg PG, Kosiba AM, Waite CE, Hawley GJ, Wang D, **Perdrial, J.N**. Adair C. E., (2022). Soil Type Modifies the Impacts of Warming and Snow Exclusion on Carbon and Nutrient Losses. Biogeochemistry 160(2), 199-217. https://doi.org/10.1007/s10533-022-00949-1.

12. Seybold, E.C., Kincaid, D., Musselman, K., Schroth, A., Adair, C., **Perdrial, J.N**., Dwivedi, R., Classen, A. (2022). Winter runoff events pose an unquantified continental-scale risk of high wintertime nutrient export. Environmental Research Letters. 17 (10) DOI 10.1088/1748-9326/ac8be5.

13. Li Li, Stewart, B., Zhi, W., Sadayappan, K., Kerins, D. Ramesh, S., ***Sterle, G.,*** Harpold, A., **Perdrial, J.N.,** (2022). Climate controls on river chemistry. Earth's Future, 10 (6). https://doi.org/10.1029/2021EF002603.

14. Shanley, J., Taylor, V.F., ***Ryan, K.,*** Chalmers, A.T., **Perdrial, J.N**., Stubbins, A., Using DOM fluorescence to predict total mercury and methylmercury in forested headwater streams, Sleepers River, Vermont USA. (2022). Hydrological Processes. 36(5), e14572. https://doi.org/10.1002/hyp.14572.

15. ***Bryn Stewart***, James B. Shanley, James W. Kirchner, David Norris, Thomas Adler, Caitlin Bristol, Adrian A. Harpold, **Perdrial, J.N**., Donna M. Rizzo, Gary Sterle, Kristen L. Underwood, Hang Wen, and Li Li (2021). Streams as mirrors: reading subsurface water chemistry from stream chemistry. Water Resources Research. 58 (1) https://doi.org/10.1029/2021WR029931.

16. ***Adler T***, Underwood KL, Rizzo DM, Harpold AA, ***Sterle G***, Li L, Wen H, *Stinson L,* ***Bristol C***, Shanley J, Lini A, Perdrial N, **Perdrial, J.N**. (2021). Drivers of Dissolved Organic Carbon (DOC) in Forested Headwater Catchments: A Multi-Scale Approach. Frontiers in Biogeoscience. 3. https://doi.org/10.3389/frwa.2021.578608.

17. ***Ryan, K. A., T. Adler***, A. Chalmers, **Perdrial, J.N**., J. B. Shanley and A. Stubbins (2021). "Event Scale Relationships of DOC and TDN Fluxes in Throughfall and Stemflow Diverge From Stream Exports in a Forested Catchment. JGR Biogeosciences. 126(7): https://doi.org/10.1029/2021JG006281.

18. **Perdrial, J.N**, Sullivan PL, Dere A, West N (2020) Editorial: Critical Zone (CZ) Export to Streams as Indicator for CZ Structure and Function. Frontiers in Earth Science 8(37). https://doi.org/10.3389/feart.2020.00037.

19. ***Landsman-Gerjoi M***, **Perdrial, J.N.,** ***Lancellotti B***, Seybold E, Schroth AW, Adair C, Wymore A (2020) Measuring the Influence of Environmental Conditions on Dissolved Organic Matter Biodegradability and Optical Properties: A Combined Field and Laboratory Study. Biogeochemistry **149**, 37–52. https://doi.org/10.1007/s10533-020-00664-9.

20. Kincaid D, Seybold EC, Adair C, Bowden WB, **Perdrial, J.N**., Vaughan MCH, Schroth AW (2020) Land Use and Season Influence Event-scale Nitrate and Soluble Reactive Phosphorus Exports and Export Stoichiometry from Headwater Catchments. Water Resources Research. 56(10). https://doi.org/10.1029/2020WR027361.

21. MacNeille, R. B., Lohse, K., Godsey, S., Derryberry, D., McCorkle, E., Parson, S., Baxter, C., **Perdrial, J.N**. (2020) Influence of Drying and Wildfire on Longitudinal Chemistry Patterns and Processes of Intermittent Streams. Frontiers. 2. https://doi.org/10.3389/frwa.2020.563841.

22. Wen H, **Perdrial, J.N**., Bernal S, Abbott BW, Dupas R, Godsey SE, Harpold A, Rizzo D, Underwood K, ***Adler T***, Hale R, *Sterle G*, Li L (2020) Temperature controls production but hydrology controls export of dissolved organic carbon at the catchment scale. Hydrol. Earth Syst. Sci. Discuss. 1-35. https://doi.org/10.5194/hess-24-945-2020.

23. ***Cincotta, M*.., Perdrial, J.N.**, *Shavitz, A., Libenson, A.,* ***Landsman, M***., Perdrial, N., ***Armfield, J., Adler, T***., Shanley, J. (2019). Soil aggregates as a source of dissolved organic carbon to streams: an experimental study on the effect of solution chemistry on water extractable carbon, Frontiers in Earth Science: Biogeosciences. 7. https://doi.org/10.3389/fenvs.2019.00172.

24. ***Armfield, J.,* Perdrial, J.N.**, *Gagnon, A., Ehrenkranz*, J., Perdrial, N.*,* ***Cincotta, M***., Ross, D., Shanley, J., Underwood, K., Ryan, P. (2019). Does stream water composition at Sleepers River in Vermont reflect dynamic changes in soils during recovery from acidification? Frontiers in Earth Science: Biogeosciences. https://doi.org/10.3389/feart.2018.00246.

25. ***Radke, A.,*** Godsey, S., Lohse, K., McCorkle, E., **Perdrial, J.N.**, Seyfried, M.S., Holbrook, S. (2019). Spatiotemporal Heterogeneity of Water Flowpaths Controls Dissolved Organic Carbon Sourcing in a Snow-dominated, Headwater Catchment. Frontiers in Ecology and Evolution. 7. https://doi.org/10.3389/fevo.2019.00046.

26. Bierman, P., Schmidt, A H., ***Campbell, M., K.,*** Dethier, D. P., Dix, M., Racela, J., **Perdrial, J**., *Massey-Bierman, M*. E., Sibello Hernández, R. Y., Cartas Aguila, H. A., Guillén Arruebarrena, A., García Moya, A., and Alonso-Hernández, C. (2019). !Cuba! River Water Chemistry Reveals Rapid Chemical Weathering, the Echo of Uplift, and the Promise of More Sustainable Agriculture. GSA today.

27. **Perdrial J.N.**, Brooks P.D., ***Swetnam T.,*** Rasmussen C., Lohse K.A., Litvak, M., Harpold, A.A., ***Broxton, P.*****,** Mitra, B., Meixner, T., *Condon, K.,* ***Huckle, D., Stielstra, C., Vazquez-Ortega, A., Lybrand, R., Holleran, M., Orem, C.,*** Chorover, J. (2018). A net ecosystem carbon budget for snow dominated forested headwater catchments: linking water and carbon fluxes to critical zone carbon storage. Biogeochemistry. 138(3):225-243. https://doi.org/10.1007/s10533-018-0440-3.

28. Hernandez-Ruiz, S., **Perdrial, J.N.**, Segraves, D. (2018). Evaluation of Corrosion Control Products on a Distribution System through Crowdsourcing. Environmental Science and Pollution Research. doi: 10.1007/s11356-018-3361-8.

29. Wymore, A.S., West, N.R., Maher, K., Sullivan, P.L., Harpold, A.A., Karwan, D., Marshall, J.A., **Perdrial, J.N.,** Rempe, D.M., Ma, L. (2017). Growing New Generations of International Critical Zone Scientists. Earth Surface Processes and Landforms. (42):2498-2502.

30. Li, L., Maher, K., Navarre-Sitchler, A., *Druhan, J.,* Meile, C., Lawrence, C., Moore, J., **Perdrial, J.N.**, Sullivan, P., Thompson, A., Jin, L., Bolton, E.W., Brantley, S., Dietrich, W., Mayer, K.U., Steefel, C.I., Valocchi, A., Zachara, J., Kocar, B., McIntosh, J., *Tutolo, B.M*., Kumar, M., Sonnenthal, E., *Bao, Ch.,* Beisman, J.(2017). Expanding the role of reactive transport models in critical zone processes. Earth Science Reviews (165): 280-301. https://doi.org/10.1016/j.earscirev.2016.09.001.

31. McIntosh, J., *Schaumberg, C.,* **Perdrial, J.N.,** Harpold, A.A., ***Vazquez-Ortega, A*.,** Rasmussen, C., Vinson, D., ***Zapata-Rios, X***., Brooks, P.D., Meixner, T., Pelletier, J., Derry, L., Chorover, J. (2017). Geochemical evolution of the Critical Zone across variable time scales informs concentration-discharge relationships: Jemez River Basin Critical Zone Observatory. Water Resources Research. (53): 4169-4196. https://doi.org/10.1002/2016WR019712.

32. Clark, K.E., Shanley, J.B., Scholl, M.A., Perdrial, N., **Perdrial, J.N**., Plante, A.F., McDowell, W.H. (2017). Tropical River suspended sediment and solute dynamics in storms during an extreme drought. Water Resources Research (53): 3695-3712. https://doi.org/10.1002/2016WR019737.

33. Miller, M. Boyer, E., McKnight, D., Brown, M., ***Iavorivska, L***., Hunsaker, C. Inamdar, S. McDowell, W., Kaplan, L., ***Gabor, R***., Lin, H., Johnson, D., **Perdrial, J.N**. (2016). Regional Variation in Organic Matter Quantity and Quality among Five Critical Zone Observatories. Water Resources Research. 52-10: 8201-8216. https://doi.org/10.1002/2016WR018970.

34. *Caulk, R. A.,* E. Ghazanfari, **Perdrial, J.N** and N. Perdrial (2016). "Experimental investigation of fracture aperture and permeability change within Enhanced Geothermal Systems." Geothermics 62: 12-21. https://doi.org/10.1016/j.geothermics.2016.02.003.

35. *Vázquez-Ortega, A., D. Huckle***, Perdrial, J.N**, M. K. Amistadi, M. Durcik, C. Rasmussen, J. McIntosh and J. Chorover (2016). "Solid-phase redistribution of rare earth elements in hillslope pedons subjected to different hydrologic fluxes." Chemical Geology 426: 1-18. https://doi.org/10.1016/j.chemgeo.2016.01.001.

36. *Vázquez-Ortega, A.,* **Perdrial, J.N**, A. Harpold, *X. Zapata*, C. Rasmussen, J. McIntosh, M. Schaap, J. Pelletier, P. Brooks, M. K. Amistadi and J. Chorover (2015). "Rare earth elements as reactive tracers of biogeochemical weathering in forested rhyolitic terrain." Chemical Geology 391 19-32. https://doi.org/10.1016/j.chemgeo.2014.10.016.

37. *Stielstra, C.M*., Lohse, K.A., Chorover, J., McIntosh, J.C., Barron-Gafford, G.A., **Perdrial, J.N**., Litvak, M., Barnard, H.R., Brooks, P.D. (2015). Climatic and landscape influences on soil moisture are primary determinants of soil carbon fluxes in seasonally snow-covered forest ecosystems. Biogeochemistry 123(3):447-465. https://www.jstor.org/stable/24713143.

38. **Perdrial, J.N.**, J. McIntosh, A. Harpold, P. Brooks, P. Troch, *J. Ray,* ***X. Zapata-Rios, C Porter,*** J.Chorover. (2014). Controls of stream water carbon in seasonally snow-covered mountain catchments: impact of water fluxes, catchment aspect and seasonal processes. Biogeochemistry 118(1-3): 273-290. https://doi.org/10.1007/s10533-013-9929-y.

39. **Perdrial, J.N.,** Perdrial N.**,** ***Porter C., Vazquez-Ortega A.,*** *Leedy J*. and Chorover J. (2014). Experimental assessment of fiberglass passive capillary wick sampler (PCap) suitability for inorganic soil solution constituents, *Soil Science Society of America Journal*, 78, 486-495. https://doi.org/10.2136/sssaj2013.07.0279.

40. **Perdrial, J.N.,** N.Perdrial, A. Harpold, X. Gao, ***R. Gabor****, K. LaSharr*, J. Chorover (2012). Impacts of sampling dissolved organic matter with capillary wicks versus aqueous soil extraction. Soil Science Society of America Journal (76):2019–2030. https://doi.org/10.2136/sssaj2012.0061.

41. Chorover J., Troch P.A., Rasmussen C., Brooks P., Pelletier J., Breshears D.D., Huxman T., Lohse K., McIntosh J., Meixner T., Papuga S., Schaap M., Litvak M., **Perdrial J.N.,** Harpold A., and Durcik M. (2011) How Water, Carbon, and Energy Drive Critical Zone Evolution: The Jemez-Santa Catalina Critical Zone Observatory. Vadose Zone Journal 10(3): 884-899. https://doi.org/10.2136/vzj2010.0132.

42. **Perdrial, J.N** and L.N. Warr (2011). Hydration behavior of MX80 bentonite in a confined volume system: Implications for backfill design. Clays and Clay Minerals 59(6): 640-653. https://doi.org/10.1346/CCMN.2011.0590609.

43. N. Perdrial, **Perdrial, J.N**, J.E. Delphin, F. Elsass, N. Liewig (2010). Temporal and spatial monitoring of mobile nanoparticles in a vineyard soil: evidence of nanoaggregate formation. European Journal of Soil Science, **61**, 456-468. https://doi.org/10.1111/j.1365-2389.2010.01263.

44. **Perdrial, J.N**, L.N. Warr, M-C. Lett F. Elsass and N. Perdrial (2009). Interaction between smectite and bacteria: implications for bentonite backfill in nuclear waste disposal. Chemical Geology, 264, 281-294. https://doi.org/10.1016/j.chemgeo.2009.03.012.

45. L.N. Warr, **J.N. Berger (= Perdrial)**, M-C. Lett and M. Kodja (2009). Clay-enhanced bioremediation of marine oil pollution Applied Clay Science,46, 337-345. https://doi.org/10.1016/j.clay.2009.09.012.

46. L.N. Warr, **J.N. Berger (= Perdrial)** (2007). Hydration of bentonite in natural waters: Application of "confined volume" wet-cell X-ray diffractometry. Physics and Chemistry of the Earth 32, 247–2. https://doi.org/10.1016/j.pce.2006.02.048.

See conference abstracts page 11-18.

PEER REVIEWED BOOK CHAPTERS

- Harrington, S., DeSanto, D., Sherriff, G., Carson, W., **Perdrial, J.N**. (2021) "Going WILD: Adding information literacy to WEC. Book chapter (9) in Anson, Chris M., & Pamela Flash (Eds.). (2022). *Writing-Enriched Curricula: Models of Faculty-Driven and Departmental Transformation*. The WAC Clearinghouse; University Press of Colorado. https://doi.org/10.37514/PER-B.2021.1299. https://wac.colostate.edu/docs/books/wec/chapter9.pdf.
- **Invited: Perdrial, J.N.**, Thompson, A., Chorover, J. (2015). "Soil geochemistry in the Critical Zone: Influence on atmosphere, surface- and ground-water composition" in "Principles and dynamics of the Critical Zone", Houser, C., Giardino, R. (eds) 19: 173-201.

NON-PEER REVIEWED PUBLICATIONS

- **Perdrial, J.N.,** Karwan, D., Harpold, A.A., Wymore, A. (2016). How can we facilitate (international) cross CZO research? Results of a test survey on collaboration with CZO's in the US (white Paper).

- **Perdrial, J.N**., MK Amistadi, *K. LaSharr, Rebecca Lybrand, D. Huckle, M. Pohlmann, R. Maxwell, A. Vazquez-Ortega, X. Zapata-Rios, T. Lau,* N. Abramson, *L. Guthridge, D. Bernard, J*. Chorover (2013). CZO Lab Handbook: best lab practices in CZO aqueous geochemistry.

- Harpold, A.A., D. Karwan, **J.N. Perdrial**, *J.A. Marshall, J. Driscoll,* A. Neal, and C. Phillips (2013): Graduate Research Group White Paper, Cross-CZO Research Potential (white paper).

FUNDING FULL LIST

- **GUND catalyst award**, $49,940. 2022-2024 "*Intersections between the climate crises, environmental racism, and STEM education: co-creating culturally relevant teacher education in Jackson, MS*". **Lead-PI.**

- **NSF- Convergence accelerator**, $99,910. 2022-2023 *"Conference: Water for a changing planet: Rethinking land use and water supply in the face of population growth and climate breakdown".* **Co-PI.**

- **NSF- EAR**, $3,408,589 (UVM, total $ 4,684,484). 2020-2025 *"Collaborative Research: Network Cluster: Using Big Data approaches to assess ecohydrological resilience across scales"*. This award is a cooperative agreement and each year we receive funding if our progress is satisfactory **$667,508 in 2021**, **Lead-PI.**

- **NSF-EAR, $54, 717** Supplement to *subaward "Collaborative Research: Network Cluster: Using Big Data approaches to assess ecohydrological resilience across scales",* **Lead-PI.**

- **NSF- EAR, $3,199,116** (total intended award), $622,456 (obligated amount for 2020). *"Collaborative Research: Network Cluster: Using Big Data approaches to assess ecohydrological resilience across scales"* **Lead-PI.**

- **Vermont Water Center, $62,562.** *"Identifying drivers of change in denitrification capacity of riparian soils during the spring snowmelt/runoff period"*. **Co-PI.** This research proposes to investigate the role of microorganisms in liberating algal bloom-causing nutrients from soils.

- **NSF-SAVI** (Science Across Virtual Institutes) $10,000. *"Big data exploration of water quality and Critical Zone (CZ) science: A one-day international workshop to develop strategies for US and European CZ studies"*, **Lead-PI.**

- **NSF-EAR, $29,727** Supplement to *"Collaborative Research: Combining Complex Systems Tools, Process-Based Modelling and Experiments to Bridge Scales in Low Temperature Geochemistry"***, Lead-PI.**

- **CAS-FRSA** (The College of Arts and Sciences Faculty Research Support Awards, FY 2018-2019), **$4954.** *"Will you become a greenhouse gas? Testing fluorescence spectroscopy as tool to predict the fate of carbon in natural waters",* **lead-PI.**

- **NSF-GG:** 2018-2021. **$300,204.** *"Collaborative Research: Combining Complex Systems Tools, Process-Based Modelling and Experiments to Bridge Scales in Low Temperature Geochemistry"*, **lead-PI.**

- **VT-NASA** EPSCoR Faculty Research Awards: 2017/2018. **$13,249.** *"Expanding the concept of the Critical Zone from Terrestrial to Planetary Systems: What can we learn about weathering on Mars?"*, **lead-PI.**

- **VTSGC** Graduate Research Fellowship Competition: 2017/2018. **$26,500.** *"Soil Aggregates: What role do they play in the generation of dissolved organic carbon?"*, **lead-PI.**

- **NSF-EPSCoR:** 2016-2021, VT EPSCoR Research Infrastructure Improvement (RII). **$20,000,000.** *"Basin Resilience to Extreme Events (BREE)"*, **co-I.**

- **CAS-FRSA** (The College of Arts and Sciences Faculty Research Support Awards, FY 2017-2018), **$3987.** *"Do soil organo-mineral aggregates drive stream water carbon fluxes?",* **lead-PI.**

- **NSF-SAVI,** (Science Across Virtual Institutes) workshop of the CZO National Office: 2015. **$10,350**. *"Critical Zone Resiliency and Disturbance: A One Day Early Career Workshop To Develop Testable Hypotheses Using Common X-CZO Measurements"*, **co-PI.**

- **CAS-FRSA** (The College of Arts and Sciences Faculty Research Support Awards, FY 2014-2015), **$4998.16**. *"Carbon, nutrient and contaminant metal release from old vs. young near-stream sediments during flooding"*, **lead-PI.**

- **NSF:** 2013-2018, EAR-1331408, **$4,900,000,** *"Transformative Behavior of Water, Energy and Carbon in the Critical Zone: II. Quantifying the Interactions between Long and Short Term Processes that Control Critical Zone Services"*, **co-author**.

- **SAHRA** 2012-2013 (Sustainability of semi-arid hydrology and riparian areas), **10,000*$,*** *"Influence of water availability on carbon cycling in seasonally-snow covered catchments"* **co-author.**

- **NSF-GG:** 2010-2013, **$424,000,** *"Plant-microbe-mineral interaction as a driver for rock weathering and chemical denudation",* **co-author**.

RECENT INVITED LECTURES AND PRESENTATIONS

- > 50 conference abstracts since 2019 (see full list at the end).
- Invited speaker at CINet Junior Scientist Council "Transdisciplinary Critical Zone Science" (2024). Recording available here.
- "Connecting river patterns with watershed and landscape processes" at "Women advancing River Research (WARR)" (2023). Recording available here.
- "Leveraging and Expanding Critical Zone Science" (2022). Information available here.
- Invited AGU townhall "Building a community that is inclusive, socially just and promotes coordination across CZ networks and watershed sites". In "Transforming Critical Zone Research Through Shared Science, Tools, Data, and Philosophy" (2022).
- "An introduction to CZ science" - Critical Conversations CZ-RCN (2021). Recording available here.
- "Big Picture or Detail? How We Need Both in Environmental Science". VTeen seminar (2021). Recording available here.
- Diversity and Advocacy Council (DAC) in the USGS New England Water Science Center (2021).
- "Expending Critical Zone Science by integrating new researchers". Cyber symposium for the Critical Zone Research Coordination Network (2020). Recording available here.
- GUND Institute, University of Vermont, "Biosphere meets Hydrosphere meets Geosphere: A Closer Look at Carbon Dynamics" (02/02/2018).
- NASA Johnson Space Center project meeting Houston TX. "Expanding the concept of the Critical Zone from Terrestrial to Planetary Systems: What can we learn about weathering on Mars?" (03/30/2018).

RECENT NON-SCHOLARLY CONTRIBUTIONS AND OUTREACH

- **"Cluster chat"** (2024) on "River water quality shaped by land-river connectivity in a changing climate" -Nature Climate Change. Recording available here.
- **Critical conversations** (2021): Presenter at the Critical Zone Research Coordination Network (RCN) webinar series (https://sites.google.com/view/czrcn).
- **Diversity and Advocacy Council** (DAC) in the USGS New England Water Science Center Invited speaker (05/07/2021).
- **Cyber seminar** (30 minutes): presenter for the CZRCN "Expending Critical Zone Science by integrating new researchers":https://www.youtube.com/watch?v=rMIX9G06V6I&feature=youtu.be, 2020.
- **News articles** (2020) on the new Critical Zone collaborative network cluster:
    - https://vtcynic.com/uncategorized/critical-zone-team-awarded-3-2-million/
    - https://www.uvm.edu/cas/news/professor-uvms-geology-department-leads-new-32m-study-earths-critical-zone

- **VTeen seminar** (2020): outreach to teen scientists talk “Big Picture or Detail? How We Need Both in Environmental Science”. https://www.youtube.com/watch?v=7DeUvJUuSYc.
- **Radio interview** (2019): (30 minutes) with Scott Campitelli on WBTV, a local radio station where we showcased the importance of interdisciplinary work. https://epscor.w3.uvm.edu/2/node/4680
- **Radio interview** (2018) (30 minutes) with Keith Pannell from Science Studio, a radio show featuring the "ever progressing world of science", on how soils and water interact to influence stream water chemistry (available here: http://ktep.org/programs/science-studio, aired 02/18/2018).

TEACHING

- GEOL 1040: Interdisciplinary Earth, intro-level undergraduate (120 students)
- GEOL 2105/3105: Earth Materials with lab, mid-level undergraduate (20-30 students)
- GEOL 2405/3405: Environmental Geochemistry with lab, mid-level undergraduate (40 students)
- GEOL4405/5405: Geochemistry of Natural Waters, graduate and upper-level undergraduate (40 students)
- ENSC160: Pollutant Movement in Air, Land & Water, mid-level undergraduate (120 students)
- GEOL371: Advanced Biogeochemistry, graduate-level (10 students)
- GEOL095: Teacher Advisory Program: Climate Change and Sustainability, intro-level undergraduate (20 students).
- GEOL197/198: Research in Geology
- ENSC 198: Research in Environmental Sciences

TEACHING RELATED PROFESSIONAL DEVELOPMENT & AWARDS

- Co-Lead of “Community Voices for Water education” a summer community event in Jackson, MS. 2023, 2024.
- Contributed to instructional team of CREST (Champlain Research Education for Secondary Teachers), led by Regina Toolin, 2019, 2020, 2021, 2022, 2023, 2024.
- Teaching online summer boot camp (remote, 2020).
- CTL book club and guided discussions “Why they can’t write”, on the challenges of current instruction on writing (2019).
- CTL workshop participant and discussion facilitator for “Cuts: Responding to Student Climate Concern”, a Theater Performance and Discussion by the University of Michigan Center for Research on Learning and Teaching Players (2019).
- Workshop on SoTeL (Introduction to the Science of Teaching and Learning, 2019).
- Workshop participant “intercultural competencies” led by Leeva Chung, UVM (2019).
- “Designing for Learning Program”, Center for Teaching and Learning, UVM (2018).
- “Building resilience in our students”, Faculty development day, (10/10/2016).
- “First Year Writing Institute” for instructors of teacher advisor program courses (2014).
- “UVM Climate Symposium” to elevate climate change literacy through service learning (2014).
- “Pedagogical Program for Newly hired TT faculty” Center for Teaching and Learning (2013)
- Sustainability Fellowship Program (2013).
- 2018: Nomination for the Kroepsch-Maurice Excellence in Teaching Award.
- 2017: Nomination for the Kroepsch-Maurice Excellence in Teaching Award.
- 2014: Graduate Student Senate Award for Excellence in Teaching.

ADVISING AND MENTORING

Graduate student advising:

2022-current: Niara Hicks, M.S.
2022-current: Bren Cable, M.S.
2020-2022: Manya Ruckhaus, M.S.

2019-2021: Caitlin Bristol, M.S.
2018-2020: Thomas Adler, M.S.
2017-2021: Brittany Lancellotti (PhD, co-advised)
2017-2019: Max Landsman, M.S.
2016-2018: Malayika Cincotta, M.S.
2016-2018: Jesse Armfield, M.S.
2014-2016: Alyson Hampsch, M.S.
2009-2013: Angelica Vazquez-Ortega (co-advised, University of Arizona)

Undergraduate research advising:

- Elliott Bloom, ENSC & Geology, University of Vermont (Honors Thesis).
- Dina Cordes ENSC, University of Vermont.
- Lindsey Stinson, Chemistry, University of Vermont
- Bryan Stolzenburg, ENSC, University of Vermont.
- Megan Petrine, ENSC, University of Vermont.
- Lindsey Stinson, Chemistry, University of Vermont
- Bryan Stolzenburg, ENSC, University of Vermont.
- Lindsey Stinson, Chemistry, University of Vermont
- Sarah Powers, Geology, University of Vermont
- Pamela Garcia, University of Puerto Rico, Puerto Rico, EPSCoR Intern
- Jack Goldman, University of Vermont, EPSCoR Intern.
- Carli Beisel, Environmental Science, University of Vermont.
- Brandon Follansbee, Geology, University of Vermont (co-advised with G. Pinder).
- Alex Gagnon, Environmental Science Major, University of Vermont.
- Herreld Rosado Loubriel, University of Turabo, Puerto Rico, EPSCoR Intern.
- Pamela Garcia, University of Puerto Rico, Puerto Rico, EPSCoR Intern.
- Aaron Shavitz, Environmental Science Major, University of Vermont (Honors Thesis)
- Thomas Adler, Environmental Engineering, University of Vermont, EPSCoR Intern.
- Sarah Mecca, Community College of Vermont, EPSCoR Intern.
- Morgan Schwartz, Geology, University of Vermont.
- Alex Gagnon, Environmental Science Major, University of Vermont.
- Ari Libenson, Environmental Science Major, University of Vermont.
- Ingrid Evans, Environmental Science Major, University of Vermont.
- Max Landsman-Gerjoi, Environmental Science Major, University of Vermont.
- Jack Ehrenkranz, Geology Major, University of Vermont.
- Ben Wilkes, Geology Major, University of Vermont.
- Tyler Davis, Environmental Science Major, University of Vermont.
- David Jaeger, Environmental Science Major, University of Vermont.
- Ashley Weltz, Geology Major, University of Vermont.
- Malayika Cincotta, Geology Major, University of Vermont.
- Elise Schumacher, High school student at Essex High School.
- Christine Loughlin, Chemistry major, University of Vermont.
- Lauren Jones, Environmental Science Major, University of Vermont.
- Ashley Weltz, Geology Major, University of Vermont.
- David Jaeger, Environmental Science Major, University of Vermont.
- Mae Kemsley, Wooster University.
- Aundrea Dolan, Coastal Carolina University.

THESIS COMMITTEEES

- Lindsey Carlson, PhD, Rubenstein School of Environment and Natural Resources (2021-2025).
- Abigail Rec, PhD, Rubenstein School of Environment and Natural Resources (2021-2025).
- Eric Parker, PhD, University of New Hampshire, (2022-2027).
- Caitlin Henry, AMP, University of Vermont, (2023-2024).

- Mackenzie E. Patrick, PhD, University of Newfoundland (Canada), invited external PhD examiner (2023).
- Sofía López Urzúa, PhD, Université Paris, Institut de physique du globe de Paris (France), invited external PhD examiner (2023).
- Suffiyan Safdar, PhD, Department of Civil and Environmental Engineering (2023).
- Isabella Bennett, PhD, Rubenstein School of Environment and Natural Resources (2021-2025).
- Sonya Vogel, MS, Department of Geology (2021-2022).
- Victoria Treto, MS, Department of Geology (2021-2022).
- Jenny Bower, PhD. Department of Plant and Soil Science (2019-2023).
- Lindsey Carlson, PhD, Rubenstein School of Environment and Natural Resources (2021-2025).
- Julia Petty (undergraduate honors thesis), Rubenstein School of Environment and Natural Resources (2021).
- Jenny Bower, PhD. Department of Plant and Soil Science (2019-2023).
- Jillian Sarazen, MS. Department of Plant and Soil Science (2019-2020).
- Frank Piasecki (undergraduate honors thesis), Department of Geography (2019).
- Sophie Ryan (undergraduate honors thesis), Department of Geography (2018).
- Emma Cronin (undergraduate honors thesis), Department of Biology (2017).
- Brendan (Guangyu) Zhu, PhD, Department of Engineering, (2016-2020).
- Keegan Griffith, MS, Department of Plant and Soil Science (2016-2017).
- Meg Legrand, MS, Department of Geology (2016-2018).
- Austin Wilkes, MS, Department of Geology (2016-2018).
- Alison Denn, MS, Department of Geology, (2014-2016).
- Braden Rosenberg, MS, Department of Geology (2013-2015).
- Robert Caulk, MS, Department of Environmental and Civil Engineering (2013-2015).
- Adam Noel, PhD, Rubenstein School of Environment and Natural Resources (2012-2021).
- Kristen Underwood, PhD, Department of Environmental and Civil Engineering (2012-2018).
- Stephanie Juice, PhD, Rubenstein School of Environment and Natural Resources (2012-2019).

CONFERENCE ABSTRACTS

Note: graduate students = ***bold italics***, undergraduate students = *italics*.

2023

- *Kerins, D., Sadayappan, K.,* **Zhi, W., Sullivan, P.L., Williams, K.H., Carroll, R.W.H., Barnard, H.R., Sprenger, M.,** Perdrial, J.N., **Dong, W., Li, L. Hydrology** is the Dominant Driver of Dissolved Carbon Production and Export in a Water-Limited Mountain Catchment**. Talk. AGU Fall meeting. S**an Francisco, CA 11-15 December 2023.
- Li, L., ***Stewart, B., Kerins, D.,*** Wen, H., **Perdrial, J.N**., Sullivan, P.L., Williams, K.H., Shanley, J.B., Barnard, H.R., Illuminating the “invisible”: carbon transformation and transport in the deeper subsurface. AGU Fall meeting. San Francisco, CA 11-15 December 2023.
- ***Cable, B****., Bloom, E.,* Perdrial, N., ***Treto, V.,*** Underwood, K., Shanley, J.B., ***Hicks, N.M.,*** Li. L., Kincaid, D.W., Richardson, J.B., Seybold, E.C**.,** ***Stewart, B., Vierbicher, A****., Rice, A.,* **Perdrial, J.N.,** Disturbances, Resilience, and the Role of Calcium-Bearing Minerals Weathering in Northeastern Forests. Poster, AGU Fall meeting. San Francisco, CA 11-15 December 2023.
- *Stewart, B.,* Shanley, J.B., Matt, S., Seybold, E.C., Kincaid, D.W., ***Vierbicher, A., Cable, B., Hicks, N.M.,*** **Perdrial, J.N**., Li, L., Differential Production and Export of Dissolved Carbon from Shallow and Deep Subsurface. Talk. AGU Fall meeting. San Francisco, CA 11-15 December 2023.

- Boyer, E.W., Aronson, E.L., Barnard, H.R., Holbrook, S., Jin, L., Kumar, P., McCay, D., Micheal, H., Munroe, J.S., **Perdrial, J.N**., Read, J.S., Welty, C., CZNet: the United States Critical Zone Collaborative Network. AGU Fall meeting. San Francisco, CA 11-15 December 2023.
- **Perdrial, J.N.,** Abbott, B., Kincaid, D.W., Boisrame, G., Lowman, L., Jin, L., Seybold, E.C., ***Hatley, C.,*** Michael, H.A., ***Fairbanks, D., Andrews, E.M.,*** Boyer, E.W., Dere, A.L.D., Ma, L., Shanley, J.B., Wheaton, D., ***Hicks, N.,*** Li, L., ***Cable, B., Spicer, N.,*** Billings, S.A., Exploring patterns and processes of Critical Zone (CZ) multidimensional resilience across the CZ collaborative network. Invited talk. AGU Fall meeting. San Francisco, CA 11-15 December 2023.
- ***Ul Haq, I.,*** Boisrame, G., Lee, B.S., Underwood, K. L., **Perdrial, J.N.,** From Ashes to Insights: Dissecting Ecosystem Dynamics Before and After Wildfire in Illilouette Creek Basin. Poster. AGU Fall meeting. San Francisco, CA 11-15 December 2023.
- ***Hicks, N.M.,*** Li, L., ***Stewart, B.,*** Underwood, K.L., ***Ul Haq, I.,*** Kincaid, D.W., Lowman, L., Shanley, J.B., Seybold, E.C., ***Cable, B.,*** **Perdrial, J.N.,** Impact of changes in water availability on water quality: a data-driven investigation of Critical Zone subsurface and vegetation interactions. Poster. AGU Fall meeting. San Francisco, CA 11-15 December 2023.
- Li, L., ***Stewart, B.,*** Zhi, W., ***Sadayappan, K., Ramesh, S., Kerins, D.,*** Sterle, G., Harpold, A., **Perdrial, J.N.** River Chemistry Predominantly Controlled by Climate, Talk. Goldschmidt Conference, Lyon, France, 9-14 July 2023.
- Lewis, C., **Perdrial, J.N.** Building partnerships for Critical Zone science education". National Association of African American Scientists Meeting, Dallas, TX, 02/2023, talk.

2022

- **Perdrial, J.N.** Investigating multiple scales across disciplines and team science: Insights from the big data critical zone collaborative network cluster. American Chemical Society annual meeting. 03/2022 (virtual) - **invited** talk.
- Li, L., ***Stewart, B***., Zhi, W., Sadayappan, K., Ramesh, S., Kerins, D., *Sterle, G.,* Harpold, A., **Perdrial, J.N.** (2022). *Climate Controls on River Chemistry*. AGU Fall Meeting. Chicago.
- **Perdrial, J.N., *Ruckhaus, M.,*** Seybold, E., Underwood, K., Kincaid, D., Shanley, J., ***Stewart, B.,*** Li, L. (2022). *Drivers and pathways of carbon and nitrogen in soil and streams: insights from the Sleepers River Research Watershed in Vermont*. AGU fall meeting. Chicago.
- Kincaid, D., Underwood, K., Hamshaw, S., Ul-Haq, I., Li, L., Rizzo, D., Seybold, E***., Stewart, B.,*** **Perdrial, J.N.** (2022). *Leveraging Catchment Attributes to Explain Patterns of Concentration-Discharge Relationships Across the Contiguous United States*. AGU fall meeting. Chicago.
- Shanley, J., Stewart, B., Malzone, J., Ryan, K., Matt, S., **Perdrial, J.N.** (2022). *Rethinking the Origin of Counterclockwise DOM C-Q Hysteresis*. AGU fall meeting. Chicago.
- ***Ul Haq, I.***, Lee, B.S., Rizzo, D.M., **Perdrial, J.N.,** Shanley, J.B. (2022) *Automated Machine Learning Approach to Supervised Anomaly Detection from Critical Zone Watershed Sensor-Generated Time Series Data*. AGU fall meeting. Chicago, poster.
- Byung Suk Lee, James B Shanley, Donna M Rizzo, **Julia N Perdrial**, ***Ijaz Ul Haq*** (2022). *Peak Anomaly Detection using Critical Zone Time Series Data: Knowledge-Engineering and Deep-Learning*. AGU fall meeting. Chicago, poster.
- Dustin W Kincaid, **Julia N Perdrial**, Deidre Wheaton, Erin Cedar Seybold, ***Bryn Stewart***, Leon Walls, Michael Blouin, Regina E Toolin and Jon Chorover. (2022) *Equity, Diversity, and Community: Opportunities for Critical Zone Science and Education.* AGU fall meeting. Chicago, poster.
- **Perdrial, J.N**., Kristen Underwood, ***Shaurya Swami***, Byung Suk Lee, ***Ijaz Ul Haq***, Dustin Kincaid, ***Bryn Stewart***, Erin Seybold, Donna Rizzo, Li Li, Scott D Hamshaw and James B Shanley (2022). From pattern to process and process to pattern: insights on data-driven Critical Zone research from the Big Data collaborative network cluster. Goldschmidt Conference (virtual, talk).

2021

- **Perdrial, J.N., *Bristol, C., Ruckhaus, M., Stewart, B.,*** Seybold, E., Abbott, B., Kincaid, D.W., Lee, R., Lewis, G., Rizzo, D.M., Underwood, K.L., Li, L., Hamshaw, S.D., Shanley, J.B., Lee, B.S. (2021). Assessing ecohydrological resilience across scales: opportunities and challenges for Critical Zone research. Goldschmidt Conference, online, talk.
- Toolin, R., Walls, L., **Perdrial, J.N.,** Blouin, M., Lewis, C., Jackson, J., Wheaton, D., Rizzo, D., Seybold, E. (2021). Co-creating transformative Educational Partnerships in Critical Zone Science. 4th annual STEM teaching conference, online, Panelist.

- Lee, R. M., K. Underwood, E. Seybold, S. Hamshaw, D. Kincaid, D. Rizzo, L. Li, **J. Perdrial**, and B. Abbott. (2021) Big data is finally enough to evaluate ecosystem vulnerability in the Anthropocene. Invited oral presentation, Geological Society of America Annual Meeting, Portland, OR. October 2021.
- **Perdrial, J.** Building a community that is inclusive, socially just and promotes coordination across CZ networks and watershed sites (2021). AGU townhall: Transforming Critical Zone Research Through Shared Science, Tools, Data, and Philosophy. Invited speaker, AGU Fall meeting online.
- **Perdrial, J.N.,** Kincaid, D., Wheaton, D., Walls, L., ***Ul Haq,*** I., Rizzo, D., Lee, B.S., Cedar, E., Lewis, G., Toolin, R., Blouin, M., Chorover, J., (2021). Why Critical Zone (CZ) science needs team science: insights from the bigdata CZ network cluster. AGU Fall meeting online poster.
- **Perdrial, J.N.,** Arora, B., Qafoku, O., Rasmussen, M., (2021). Responding to the Present and Preparing for the Future: Bridging the Gap Between Physical, Chemical, and Biological Processes to Create Transformative Approaches in Critical Zone and Soil Science I Oral Session chair. AGU Fall Meeting, New Orleans & online, 13-17 December 2021.
- Stewart, B., Shanley, J.B., Matt, S., **Perdrial, J.N.,** ***Ruckhaus, M.,*** Seybold, E.C., Li, L., (2021). Stream chemistry response to external perturbations at Sleepers River. Talk. AGU Fall Meeting, New Orleans & online, 13-17 December 2021.
- Lee, B.S., Shanley, J.B., *Fogg, Z., Rubin, J.,* Hamshaw, S., Rizzo, D.M., **Perdrial, J.N.** (2021). Automated Cleaning of Multiple Time Series Data from the Sleepers Research River Watershed. Talk. AGU Fall Meeting, New Orleans & online, 13-17 December 2021.
- Shanley, J.B., Sebestyen, S.D., Chalmers, A., Matt, S., Chandler, D.G., Bailey, S., Campbell, J.L, ***Ryan, K.A.,*** **Perdrial, J.N.,** ***Ruckhaus, M.,*** Seybold, E.C., Li, L., ***Stewart, B,*** Liu, F., Porter, V.,(2021) Long-term Research and Monitoring at Sleepers River Research Watershed, Vermont USA. Talk. AGU Fall Meeting, New Orleans & online, 13-17 December 2021.
- Li, L., Zhi, W., ***Stewart, B.,*** Wen, H., Xiao, D., Barnard, H.R., Kirchner, J.W., **Perdrial, J.N.,** Shanley, J.B., Sullivan, P.L., Williams, K.H., (2021) The shallow and deep hypothesis: linking flow paths, biogeochemical reactions, and stream chemistry in the Critical Zone. Talk. AGU Fall Meeting, New Orleans & online, 13-17 December 2021.
- Arora, B., Stegen, J., Sullivan, P.L., Ireson, A.M., Oswald, C.J., Wymore, A.S., Wellen, C.C., **Perdrial, J.N.,** Arrigo, J.S.(2021)Transforming Critical Zone Research Through Shared Science, Tools, Data, and Philosophy. Townhall. AGU Fall Meeting, New Orleans & online, 13-17 December 2021.

2020

- Underwood, K.L., Hanley, J., Rizzo, D., Sterle, G., Harpold, A., Adler, T., Li, L., Wen, H., **Perdrial, J.N.** Use of machine learning to extract patterns from long-term monitoring data across the US. Ecological Society of America Annual Meeting (online).
- **Perdrial J,** Rizzo, D.M., Underwood, K.L., Lee, B., Toolin, R., Seybold, E.C., Harpold, A.A., Boisrame, G., Abbott, B., Li, L., Hamshaw, S., Blouin, M., Walls, L., ***Sterle, G., Bristol, C., Ruckhaus, M., Stewart, B.,*** Chorover, J., Shanley, J. (2020). Critical Zone Network Cluster research: Using Big Data approaches to assess ecohydrological resilience across scales. AGU Fall Meeting, December 1-17, online, talk.
- ***Stewart, B.,*** Wen, H., Shanley, J.B., Kirchner, J.W., Norris, D., ***Adler, T., Bristol, A.,*** Harpold, A.A., **Perdrial, J.N.**, Rizzo, D.M., ***Sterle, G.,*** Underwood, K.L., Li, L. From soil to stream: reading subsurface structure from stream chemistry. AGU Fall Meeting, December 1-17, online, talk.
- ***Ryan, K.,*** Shanley, J., Taylor, V., Chalmers, A., **Perdrial, J.N**., Stubbins, A., Comparing Fluxes of Dissolved Organic Carbon During Throughfall and Stream Events in a Forested Catchment. AGU Fall Meeting, December 1-17, online, poster.
- **Perdrial J,** Adler T, Bristol C, Underwood K, Rizzo D, Wen H, Li L, Harpold A, Sterle G & Hanley J (2020). Combining Complex Systems Analyses with Process Observations to Understand Stream Dissolved Organic Carbon Across Scales. Goldschmidt Conference, virtual, June 21-26.
- Gary Sterle, **J. N. Perdrial,** Thomas Adler, Kristen Underwood, Donna M. Rizzo, Hang Wen, Li Li and Adrian Harpold, (2020). Augmenting CAMELS (Catchment Attributes and Meteorology for Large-sample Studies) with atmospheric and stream water chemistry data. Ecological Society of America virtual meeting, August 3-6.
- Kristen Underwood, John Hanley, Donna M. Rizzo, *Gary Sterle*, Adrian Harpold, Thomas Adler, Li Li, Hang Wen and **J. N. Perdrial,** (2020). Use of machine learning to extract patterns from long-term monitoring data across the US. Ecological Society of America virtual meeting, August 3-6.

- ***Caitlin Bristol, Thomas Adler***, *Lindsey Stinson, Bryan Stolzenburg*, Kristen Underwood, Donna, M. Rizzo, Hang Wen, Li Li, Adrian Harpold, Gary Sterle, James B. Shanley and **J. N. Perdrial,** (2020). Assessing the impact of acidification and recovery on dissolved organic carbon (DOC) mobilization from a snow dominated, forested headwater catchment. Ecological Society of America virtual meeting, August 3-6.
- ***Bryn Stewart***, Hang Wen, James B. Shanley, **J. N. Perdrial, *Thomas Adler***, Adrian Harpold, Donna M. Rizzo*, Gary Sterle*, Kristen Underwood and Li Li, (2020) Distinct solute export patterns shaped by shallow and deep water chemistry contrasts. Ecological Society of America virtual meeting, August 3-6.

2019

- **Perdrial J**, ***Landsman-Gerjoi M, Lancellotti B,*** Seybold E, Kincaid D, Adair C, Schroth A & Wymore A. (2019). Dissolved Organic Matter Biodegradation: How Substrate, Microbial Activity and Environmental Conditions Converge. Goldschmidt Conference, Barcelona, August 18-23, poster.
- Seybold, EC, Kincaid, DW, Lancellotti, B, Adair, CE, **Perdrial, JN**, Schroth, AW. Effects of rain on snow events on runoff generation and nutrient export from forested and agricultural catchments in northern Vermont. Society for Freshwater Science Annual Meeting (online).
- Bierman P, Schmidt A, Yvelice Sibello Hernández R, Campbell M, Alejandro Cartas AGUILA4 H, Bolaños Alvarez Y, Guillén Arruebarrena A, Dethier D, Dix M, Massey-Bierman M, García Moya A, **Perdrial J**, Racela J, Corbett L & Alonso-Hernández C (2019). First Chemical and Isotopic Denudation Rate Estimates for Central Cuban Drainage Basins. Goldschmidt Conference, Barcelona, August 18-23, poster.
- Dix, M., Hecht, Z., Bermudez, E. A., Schmidt, A. H., Bierman, P. R., Campbell, M. K., Dethier, D. P., Racela, J., **Perdrial, J**., Massey-Bierman, M. E., Sibello Hernández, R. Y., Cartas Aguila, H. A., Guillén Arruebarrena, A., García Moya, A., and Alsono-Hernández, C. (2019) Quantifying the effects of organic agriculture in 26 central Cuban rivers using short-lived fallout radionuclides in detrital river sediment. GSA *Abstracts with Programs*, Annual Meeting, Phoenix, AZ. v. 51(5), Abstract 124-5. doi:10.1130/abs/2019AM-340417
- Bierman, P., Schmidt, A H., Campbell, M. K., Dethier, D. P., Dix, M., Racela, J., **Perdrial, J**., Massey-Bierman, M. E., Sibello Hernández, R. Y., Cartas Aguila, H. A., Guillén Arruebarrena, A., García Moya, A., and Alonso-Hernández, C. (2019) Central Cuban river waters indicate high rates of chemical weathering whereas low nutrient loads reflect sustainable agriculture practices. GSA *Abstracts with Programs*, Annual Meeting, Phoenix, AZ. v. 51(5), Abstract 124-2. doi:10.1130/abs/2019AM-336512
- Dustin W Kincaid, Erin Cedar Seybol, Carol Adair, William B Bowden, **J.N.Perdrial**, Matthew Vaughan and Andrew W. Schroth. (2019). Event-scale riverine loading of nitrogen and phosphorus: Impacts of land use, seasonality, and antecedent conditions on N:P export ratios. AGU Fall Meeting, December 9-13, DC. poster
- Erin Cedar Seybold, Dustin W Kincaid, ***B. Lancellotti***, Carol Adair, **J.N.Perdrial** and Andrew W. Schroth. Effects of rain on snow events on runoff generation and nutrient export from forested and agricultural catchments in northern Vermont. AGU Fall Meeting, December 9-13, DC. talk
- ***B. Lancellotti***, Carol Adair, **J.N.Perdrial**, Erin Cedar Seybold, Dustin W Kincaid and Andrew W. Schroth. Spring Snowmelt: a 'Hot Moment' for Soil Denitrification in Riparian Areas? AGU Fall Meeting, December 9-13, DC, poster
- Underwood, K., Rizzo, D.M., **Perdrial, J.N.**, Li, L., Wen, H., ***Adler, T***., Harpold, A., *Sterle, G*., Hanley, J., (2019, June). Application of machine-learning tools to extract patterns in long-term DOC monitoring data: an integrated, multi-scale approach. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.
- ***Adler, T*.**, **Perdrial, J.N.,** Underwood, K., Rizzo, D., Li, L., Wen, H., Harpold, A., *Sterle, G*., Shanley, J., ***Ryan, K***. (2019, June). The Fate and Transport of DOC as a Response to Changes in Soil Solution Chemistry. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.
- Wen, H., ***Perdrial, J.N***., Bernal, S., Abbott, B., Dupas, R., Godsey, S., Harpold, A., Rizzo, D., Underwood, K., ***Adler, T***., Hale, R., *Sterle, G*., Li., L. (2019, June). Temperature controls production but hydrology controls export of dissolved organic carbon at the catchment scale. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.

- Li, L., Wen, H., **Perdrial, J.N.,** Abbott, B., Harpold, A., Rizzo, D., Underwood, K., ***Adler, T.,*** *Sterle, G*. (2019, June). Catchments as complex systems, catchment as simple systems: harvesting the power of hydrobiogeochemical models integrating data, processes, and disciplines. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.
- Harpold, A*., Sterle, G*., Li, L., Wen, H., ***Adler, T***., Underwood, K., Rizzo, D.M., **Perdrial, J.N.** (2019, June). When Does Changing Snow Lead To Changing Streamflow? A Multi-Observation Approach to Investigate Snow-Dominated Western U.S. Catchments. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.
- **Perdrial, J.N., *Adler, T.,*** Underwood, K., Rizzo, D., Li, L., Wen, H., Harpold, A., *Sterle, G*. (2019, June). Collaborative research on stream dissolved organic carbon: a test case for integrative modelling across scales. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.
- *Sterle, G*., Harpold, A**., Perdrial, J.N**., Li, L., Wen, H., ***Adler, T.,*** Underwood, K., Rizzo, D.M. (2019, June). CAMELS-CHEM: Developing a hydrochemistry dataset for large sample cross-catchment analyses. Poster presented at: Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Transcending the Uniqueness of Place in the Age of Big Data, Proctor Academy, Andover, NH.

2018

- **Perdrial, J.N**., ***Cincotta, M., Armfield, J.R., Adler***, T., Shanley, J., Underwood, K.L., Rizzo, D.M., Wen, H., Li, L., Harpold, A., *Sterle, G*. (2018). Combining long-term observations with experiments to test hypotheses on stream water dissolved organic carbon dynamics at the Sleepers River Research Watershed. AGU Fall Meeting, December 10-15, DC, talk.
- ***Adler, T*.., Perdrial, J.N.,** Underwood, K.L., Rizzo, D.M., Li, L., Wen, H., Harpold, A., *Sterle, G.* (2018). Understanding the importance of soil aggregate destabilization as mechanism of DOC release in two Northeastern headwater catchments. AGU Fall Meeting, December 10-15, DC, poster.
- Wen, H., Li, L**., Perdrial, J.N**., Abbott, B., ***Adler, T***., Bernal, S., Dupas, R., Godsey, S., Hale, R., Harpold, A., Rizzo, D.M., *Sterle, G.,* Underwood, K.L. (2018). Hydrologic Control of Catchment-Scale Dissolved Organic Carbon (DOC) Dynamics. AGU Fall Meeting, December 10-15, DC, poster.
- Underwood, K.L., Rizzo, D.M**., Perdrial, J.N**, Li, L., Wen, H., ***Adler, T.,*** Harpold, A., *Sterle, G.* (2018). Application of machine-learning tools to extract patterns in long-term DOC monitoring data: an integrated, multi-scale approach. AGU Fall Meeting, December 10-15, DC. talk
- Perdrial, N., ***Armfield, J., Reeder, G.,*** *Gagnon, A*., Rampe, E., **Perdrial, J.N.** (2018). The Martian Critical Zone: Concept and Experimental Example. Goldschmidt Conference, Boston, MA August 12-17. (peer reviewed).
- ***Juice, S.M.,*** Adair, C., Schaberg, P., Hawley, G., Kosiba, A., Waite, C., Wang, D., **Perdrial, J.N**. (2018). Interacting effects of climate change and soil characteristics on carbon and nitrogen loss from northern hardwood forests. Ecological Society of America Meeting, New Orleans, August 5-10 (peer reviewed talk).
- ***MacNeille, R. B.,*** Lohse, K., Godsey, S., Derryberry, D., McCorkle, E., Parson, S., Baxter, C., **Perdrial, J.N.** (2018). Stream structure at low flow: biogeochemical patterns of intermittent streams over space and time. Society of Freshwater Sciences Annual Meeting, Detroit, MI, May 20-25 (peer reviewed poster).
- ***Cincotta, M.,*** **Perdrial, J.N.,** *Shavitz, A.,* ***Landsman, M****. Liebenson, A.,* Shanley, J. (2018). The soil aggregates play in the generation of dissolved organic carbon: a case study at Sleepers River watershed. GSA meeting Northeastern section, Burlington, March 18-20 (peer reviewed talk).
- *Shavitz, A.,* **Perdrial, J.N., *Cincotta, M., Armfield, J.***, Shanley, J. (2018). Influence of soil chemistry on carbon and nutrient liberation in the Sleepers River watershed. GSA meeting Northeastern section, Burlington, March 18-20 (peer reviewed poster).
- ***Armfield, J.,*** *Gagnon, A.,* **Perdrial, J.,** *Ehrenkranz, J.,* Perdrial, N., ***Cincotta, M.,*** Ross, D., Shanley, J., Bailey, S., Ryan, P. (2018). Weathering dynamics in the acid impacted Sleepers River watershed: combining observations of stream and soil data. GSA meeting Northeastern section, Burlington, March 18-20 (peer reviewed poster).

- ***Landsman-Gerjoi, M., Lancellotti, B.*****,** *Beisel, C.,* ***Cincotta, M.*****,** Adair, C., Schroth, A., **Perdrial, J.N.** (2018). Incubations vs. fluorescence spectroscopy: a field and lab study on DOM bioavailability. GSA meeting Northeastern section, Burlington, March 18-20 (peer reviewed poster).
- ***Ryan, K.,*** Shanley, J., Stubbins, A., **Perdrial, J.,** Raymond, P., Hosen, J. (2018). In-situ optical sensors reveal hot moments of dissolved organic matter exports in Sleepers River Research Watershed, Vermont. GSA meeting Northeastern section, Burlington, March 18-20 (peer reviewed talk).

2017 and before

- ***Lancellotti, B.,*** Ross, D., Adair, C., Schroth, A., **Perdrial, J.N.** (2017). Quantifying Phosphorus Retention in Soils of Riparian Buffers Influenced by Different Land Use Practices, AGU Fall meeting, San Francisco, December 11-15 (peer reviewed poster).
- **Perdrial, J.N.*, Landsmann, M., Cincotta, M.***, Adair, C., (2017). Do clay minerals affect dissolved organic matter bioavailability in batch experiments? Goldschmidt Conference, Paris, France, August 13 – 19 (peer reviewed talk).
- **Perdrial, J.N.** (2017). Carbon dynamics from a Critical Zone perspective: interfaces at the catchment and molecular scale. 1st Geobiology Society Conference, Banff, Canada, June 11-14 (invited talk).
- Clark K., Shanley J., **Perdrial J.N.**, Plante A.F., McDowell W., (2016). Tropical river suspended load and solute dynamics in storms within an extreme drought, Luquillo Critical Zone Observatory, Puerto Rico. AGU Fall Meeting, December 11-16 (peer reviewed talk).
- **Perdrial, J.N., *Hampsch, A***., Adair, C., (2016). Bioavailability of Carbon of a Vermont River Corridor is a Function of Land cover. Goldschmidt Conference, June 26 – July 1, Yokohama, Japan (peer reviewed talk).
- Gabor, R., Brooks, P. **Perdrial, J**. (2015). From Soil to Surface Water: a Meta-Analysis of Catchment-Scale Organic Matter Production and Transport. AGU Fall Meeting, December 14-18 (invited talk).
- **Perdrial**, J.N.**,** S. Hernandez-Ruiz, *T. Lau, A.* ***Hampsch*****, J**. Chorover (2015). How important are the lower fluorescence excitation wavelengths for understanding the dynamics of Critical Zone soil solution and stream water carbon? Gordon Conference on Catchment Science, June 13-19, Andover NH (peer reviewed poster).
- ***Hampsch, A*****., J.N.Perdrial,** *L. Jones, D. Jaeger, A. Weltz* (2015). Using parallel factor (PARAFAC) analysis to assess carbon heterogeneity in Vermont's floodplains: Fingerprinting dissolved organic matter by land cover. Gordon Conference on Catchment Science, June 13-19, Andover NH (peer reviewed poster).
- **Perdrial, J.N.,** Dolan, A., *Kempsley, M.* (2014). Do Vermont's floodplains constitute an important source of labile carbon? AGU Fall meeting, San Francisco, December 15-19 (peer reviewed poster).
- **Perdrial**,**J.N.,** Brooks, P.D., ***Swetnam, T***., Lohse, K.A., Rasmussen, C. Harpold, A.A., Litvak, M.E., ***Broxton, P.A*****.,** Mitra, B**. *Condon, K., Huckle, D., Vazquez-Ortega, A., Lybrand, R.A., Holleran, M.Orem,*** C.A., Meixner, T, Chorover, J. (2013). Do fire disturbances account for missing C in snow dominated headwater catchments in NM? AGU Fall Meeting, San Francisco, December 9-13 (peer reviewed poster).
- Brooks, P.D., ***Biederman, J.A., Condon, K***., Chorover, J., McIntosh, J.C., Meixner, T, **Perdrial, J.N.** (2013). A cross-site comparison of factors controlling streamwater carbon flux in western North American catchments (Invited). AGU Fall Meeting, San Francisco, December 9-13 (invited poster).
- Chorover, J., **Perdrial**, J.N., Field, J., Pelletier, J., ***Pohlmann, M.,*** Losleben, M., *Lasharr, K.,* Amistadi, MK., Brooks, P.D., McIntosh, J., Meixner, T., Gallery, R., Rich, V., Rasmussen, C., Schaap, M., Breshears, D. (2013). Fluid Chemistry Dynamics Before and After Fire in the Jemez River Basin Critical Zone Observatory. AGU Fall Meeting, San Francisco, December 9-13 (peer reviewed talk).
- Chorover, J., P. Brooks, A. Harpold, M. Litvak, J. McIntosh, J. Pelletier, **J.N. Perdrial**, P. Troch, C. Rasmussen. (2013). Critical zone evolution by jerks. Goldschmidt Conference, Florence, Italy, August 24-30 (invited keynote)
- **Perdrial, J.N., *Stielstra, C., Lybrand, R. Swetnam, T*****.,** Mitra, B., ***Huckel, D*****.,** Harpold, A., J. McIntosh, T. Meixner A .***Vasquez-Ortega, K. Condon*****,** P. Brooks, J. Chorover. (2013). Closing the Carbon balance for snow dominated headwater catchments in the US SW. Gordon Conference for Catchment Science, Andover NH, June 16-21 (peer reviewed poster).
- Harpold, A., P. Brooks, J. **Perdrial, J.N.,** McIntosh, T. Meixner, ***X. Zapata***, and J. Chorover (2012). Quantifying variation in solute sources and nutrient cycling in montane headwater catchments. AGU, Fall Meeting 2012, December 3-7 (peer reviewed talk).
- *Prescott-Smith,J.,* **Perdrial**, **J.N.,** ***Pohlmann***,M., Perdrial, N., Chorover, J. (2012). Characterizing particulate and dissolved matter in a small forested headwater stream during a monsoon storm. AGU, Fall Meeting 2012, December 3-7 (peer reviewed poster).

- ***Pohlmann, M.,* Perdrial, J.N.,** *Prescott-Smit*h,J., Amistadi, MK., Troch,P., Chorover, J. (2012). Resolving dissolved vs. colloidal and particulate weathering product forms across the storm hydrograph. AGU, Fall Meeting 2012, December 3-7 (peer reviewed poster).
- ***C.M.Porter**,* J.C.McIntosh, L.A.Derry, T.Meixner, J.Chorover, P.D.Brooks, C. Rasmussen, **J.N. Perdrial** (2012). Determining Solute inputs to soil and stream waters in a seasonally snow-covered mountain catchment in northern New Mexico using Ge/Si 87Sr/86Sr and ion chemistry. AGU Fall Meeting 2011, December 3-7 (peer reviewed poster).
- ***A.Vazqeuez-Ortega*, J.N. Perdrial**, A.A.Harpold, ***X.Zapata-Rios***, C.Rasmussen, J.C.McIntosh, M.Schaap, J.D.Pelletier, MK. Amistadi, J. Chorover. (2012). Rare Earth Elements as reactive tracers of biogeochemical weathering in the Jemez River Basin Critical Zone Observatory. AGU Fall Meeting 2011, December 3-7 (peer reviewed poster).
- D.G.Zaharescu; K. Dontsova, C.I.Burghelea, J.Chorover, R. Maier, **J. N. Perdrial** (2012). Life on rock. Scaling down biological weathering in a new experimental design at Biosphere-2. AGU Fall Meeting 2011, December 3-7 (peer reviewed poster).
- **J.N. Perdrial**, C.Rasmussen, J.C.McIntosh, ***X.Zapata-Rios***, A.A.Harpold*,* ***A.Vazquez-Ortega, C.Porter,*** P.D.Brooks, T.Meixner, B. Mitra, P.A. Troch, J.Chorover (2012) Carbon and Water: the Energy for weathering and chemical denudation. American Geophysical Union, Fall Meeting 2012, December 3-7 (peer reviewed talk).
- **Perdrial**, **J. N.,** P. Brooks, J. Chorover, ***K. Condon,*** A. Harpold, ***M. Holleran, D. Huckle, R. Lybrand*****,** P. Troch, J. McIntosh, T. Meixner, B. Mitra**, *M. Pohlmann***, C. Rasmussen, ***T. Swetnam, A. Vazquez-Ortega, X. Zapata-Rios*** (2012). Do water and carbon fluxes control chemical denudation? Goldschmidt, Montreal. June 24-29 (peer reviewed talk).
- **Perdrial, J.N., *Vasquez-Ortega***, A., McIntosh, J., Harpold, A., ***Porter, C., Zapata-Rios****, X., Guthridge*, L., Brooks, P.D., Chorover, J. (2012). Stream water organic matter characteristics after the Las Conchas wildfire: perspective from the critical zone. GSA meeting Rocky Mountain section, ABQ, May 15-17 (peer reviewed talk).
- **J.N. Perdrial**, N. Perdrial, A. Harpold, A. Peterson, ***A. Vasquez*****,** J. Chorover (2011). Probing dissolved organic matter in the critical zone: a comparison between in situ sampling and aqueous soil extracts. AGU Fall Meeting 2011, December 5-9 (peer reviewed poster).
- **J.N. Perdrial**, P. Brooks, J. Chorover, A. Harpold, ***I. Heidbuechel***, J. McIntosh, *J. Ray,* ***X. Zapata-Rios*** (2011). Impact of water sources & flow paths on carbon in streams of seasonally snow-covered catchments Goldschmidt Conference, Prague, August 14-19 (peer reviewed talk).
- Zaharescu, D., Dontsova, K. Chorover, J., Huxman, T. Maier, R., **Perdrial, J.N.** (2011). Effect of Plant-Microbial Associations on Weathering of Basalt, Granite, Schist, and Rhyolite. Goldschmidt Conference, Prague, August 14-19 (peer reviewed poster).
- **J.N. Perdrial**, J. McIntosh, P. Brooks, J. Chorover (2010). DOM as a potential tracer for in-stream processes in small mountain catchments (JRB-SCM Critical Zone Observatory). AGU Fall Meeting 2010, San Francisco, December 13-17 (peer reviewed talk).
- *E. Dolan*, **J.N. Perdrial**, ***A. Vázquez-Ortega, S. Hernández-Ruiz***, J. Chorover (2010). Testing the application of Teflon/quartz soil solution samplers for DOM sampling in the Critical Zone: Field and laboratory approaches. AGU Fall Meeting 2010, San Francisco, December 13-17 (peer reviewed poster).
- *J. Ray;* J.C. McIntosh; **J.N. Perdrial**; P.D. Brooks; J. Chorover; C. Rasmussen; T. Meixner (2010) Sources and Cycling of Carbon in Two Semi-Arid Catchments, Valles Caldera Preserve, NM: Insights From Carbon Isotopes. AGU Fall Meeting 2010, San Francisco, December 13-17 (peer reviewed poster).

  ***Note:* Berger = Perdrial**
- **J.N. Berger**, L.N. Warr, M-C. Lett and N. Perdrial (2007). Monitoring smectite hydration in the presence of bacteria. 44rd Annual Meeting of the Clay Mineral Society, Santa Fe, New Mexico, USA. June 2-6 (peer reviewed talk).
- **J.N. Berger**, L.N. Warr, M-C. Lett and N. Perdrial (2007). Effect of bacteria on the water storage and retention capacity of swelling clays. EGU General Assembly, Vienna, April 15-20 (peer reviewed talk).
- L.N. Warr, **J.N. Berger** , M-C. Lett, M. Khodja (2007). An experimental study of clay bacterial interaction in Prestige oil. . EGU General Assembly, Vienna, April 15-20 (peer reviewed poster).
- **J.N. Berger**, L.N.Warr, M-C.Lett, N.Perdrial. Smectite hydration, solution chemistry and bacterial activity: interactions in a confined volume system (2006). Bridging Clays, 43rd Annual Meeting of the CMS-4ème Colloque du GFA, Ile d'Oleron. (peer reviewed talk).

- **J.N. Berger**, L.N.Warr, M-C.Lett N.Perdrial (2006). Monitoring the effect of swelling clay on metal reducing bacteria. EGU General Assembly, Vienna, April 2-7 (peer reviewed poster).
- **J.N. Berger**, L.N. Warr, M-C. Lett, J. Duplay (2005). The Influence of *Shewanella Putrefaciens* on the Swelling Behavior of Nontronite in Solution. Annual Meeting of the Clay Mineral Society, Burlington, VT, June 11-15 (peer reviewed poster).