

## **Brenda B. Bowen**

Department of Geology and Geophysics  
Global Change and Sustainability Center  
University of Utah

*Email: [brenda.bowen@utah.edu](mailto:brenda.bowen@utah.edu)*

*Website: <http://environment.utah.edu/brenda-bowen/>*

---

### **Professional Preparation**

2005- **Ph.D.** Geology, *University of Utah*, Salt Lake City, UT

2000- **M.S.** Earth Sciences, *University of California Santa Cruz*, Santa Cruz, CA

1998- **B.S.** Earth Sciences, *University of California Santa Cruz*, Santa Cruz, CA

### **Professional Appointments**

2015 – present      **Director**, Global Change and Sustainability Center, University of Utah  
2014 – present      **Associate Professor** (with tenure), Geology and Geophysics, University of Utah  
2012 – 2015        **Associate Director**, Global Change and Sustainability Center, University of Utah  
2012 – 2014        **Associate Research Professor**, Geology and Geophysics, University of Utah  
2007 – 2012        **Assistant Professor**, Earth and Atmospheric Sciences, Purdue University  
2005 – 2007        **Postdoctoral Research Associate**, Geology, Central Michigan University

### **Current Research**

I work to understand how changing environmental conditions influence the physical and chemical properties and processes that shape landscapes. My research uses a wide range of tools over broad spatiotemporal scales to examine the composition of sediments, minerals, and fluids in modern surface and subsurface systems and in ancient rock records, and identifies the links between biophysical processes and human activities, particularly in extreme environments. This work involves collaboration with scholars and practitioners from across disciplines and sectors including social science, atmospheric science, planetary science, microbiology, anthropology, communication, engineering, art, planning, and policy.

### **Awards and Honors**

- College of Mines and Earth Sciences Top Researcher Honoree (2017)
- University of Utah Careers Services Award (2016)
- Purdue College of Science Undergraduate Advising Award (2010)
- Best Poster Award, Division of Environmental Geoscience, AAPG Eastern Section Meeting (2009)
- Outstanding paper of the year in *Journal of Sedimentary Research* (Benison et al., 2007)

### **Grants Awarded**

- Investigation of Jarosite and Alunite in Jurassic Sandstones as Analogs for Layered Sulfate-bearing Deposits on Mars: NASA Solar Systems Workings (Co-I), 2019-2021, \$50,000 (total \$640k to CU Boulder, subcontract to UU)
- Hydrologic Systems, Human Consumption, and Aridland Spring Sustainability: University of Utah, Society, Water, and Climate seed grant (Co-PI), 2017-2018, \$10,000.
- Adaptation, Mitigation, and Biophysical Feedbacks in the Changing Bonneville Salt Flats: NSF Coupled Natural Human Systems (Lead PI), 2016-2020, \$1,500,000.
- 2018 Salt Crust Thickness Study of the Bonneville Salt Flats: Intrepid Potash (Sole PI), 2015-2018, \$127,856.
- Geomicrobiology of the Bonneville Salt Flats: NASA EPSCoR (Co-PI), 2014-2015, \$50,000.
- Friends of Red Butte Creek: Research, Outreach, and Education Grants: Salt Lake County Watershed Planning and Restoration Program (Sole PI), 2013-2014, \$35,000.
- U-S<sub>2</sub>TEM Scholars- Undergraduate Sustainability Science, Technology, Engineering, and Math Scholars: National Science Foundation (Co-PI), 2013-2019, \$600,000.

- Training Students to Analyze Spatial and Temporal Heterogeneities in Reservoir and Seal Petrology, Mineralogy, and Geochemistry: Implications for CO<sub>2</sub> Sequestration Prediction, Simulation, and Monitoring: U.S. Department of Energy (Sole PI), 2010-2013, \$299,920.
- Analytical-Numerical Sharp-Interface Model of CO<sub>2</sub> Sequestration and Application to Illinois Basin: U.S. Department of Energy (Co-PI), 2009-2012, \$62,462.
- Petrological and Petrophysical Characterization of the Mount Simon Sandstone and Eau Claire Formation in Support of Phase III Sequestration Evaluation: Indiana Geological Survey / U.S. Department of Energy (Sole-PI), 2008-2014, \$172,257.
- Depositional and Diagenetic Heterogeneities of the Mt. Simon Sandstone and Eau Claire Formation: Midwest Regional Carbon Sequestration Partnership / U.S. Department of Energy (Sole-PI), 2008-2011, \$112,871.
- Collaborative Research: The evolution of extremely acid lakes and groundwaters in Western Australia: National Science Foundation (Co-PI), 2008 - 2012, \$114,407.
- Evaluating the History of Eolian and Interdune Fluid-Sediment Interactions and Mass Transfer in an Acid and Redox Influenced Diagenetic System: Mollies Nipple, Grand Staircase-Escalante National Monument: American Chemical Society- Petroleum Research Fund (Sole-PI), 2007-2010, \$40,000.

**Publications** (*student authors underlined*)

- Ivkovich, L., and **Bowen, B.B.**, 2020, No Away: Phantom Limb Company's Falling Out: Performance Research, special issue on Dark Ecologies, in press.
- Lerback, J.C., Hynek, S.A., **Bowen, B.B.**, Bradbury, C.D., Solomon, D.K., Fernandez, D.P., 2019, Springwater provenance and flowpath evaluation in Blue Lake, Bonneville basin, Utah: *Chemical Geology*, <https://doi.org/10.1016/j.chemgeo.2019.119280>
- McGonigle, J., Bernau, J., **Bowen, B.B.**, and Brazelton, W., 2019, Robust archeal and bacterial communities inhabit shallow subsurface sediments of the Bonneville Salt Flats: *mSphere*, American Society of Microbiology 4 (4) e00378-19; DOI: 10.1128/mSphere.00378-19
- Chan, M.A., **Bowen, B.B.**, Corsetti, F.A., Farrand, W.H., Law, E.S., Newsom, H.E., Perl, S.M., Spear, J.R., and Thompson, D.R., 2019, Exploring, Mapping, and Data Management Integration of Habitable Environments in Astrobiology: *Frontiers in Microbiology* v. 10, n. 147, doi: 10.3389/fmicb.2019.00147
- Bowen, B.B.**, Kipnis, E.L., and Pechmann, J., 2018, Observations of salt crust thickness change at the Bonneville Salt Flats from 2003-2016, in: Emerman, S.H., Simmons, S., Bowen, B.B., Schamel, S. (Eds.), *Geofluids of Utah, 2018 Utah Geological Association Guidebook 47*, p. 247-285.
- Kipnis, E.L. and **Bowen, B.B.**, 2018, Salt crust change and humans as geologic agents at the Bonneville Salt Flats, Utah, in: Emerman, S.H., Simmons, S., Bowen, B.B., Schamel, S. (Eds.), *Geofluids of Utah, 2018 Utah Geological Association Guidebook 47*, p. 287-303.
- Bowen, B.B.**, Bernau, J., Kipnis, E.L., Lerback, J., Wetterlin, L. and Kleba, B., 2018, The Making of a Perfect Racetrack at the Bonneville Salt Flats, *The Sedimentary Record*, v.16, n.2, p. 4-11, doi: 10.2100/sedred.2018.2
- Bowen, B.B.**, Kipnis, E.L., and Raming, L.W., 2017, Temporal dynamics of flooding, evaporation, and desiccation cycles and observations of salt crust area change at the Bonneville Salt Flats, Utah: *Geomorphology* v. 299, p. 1-11.
- Wang, F., **Bowen, B.B.**, Seo, Ji-Hye, and Michalski, G., 2017, Laboratory and field characterization of visible to near infrared spectral reflectance of nitrate minerals from the Atacama Desert, Chile and implications for Mars: *American Mineralogist: Journal of Earth and Planetary Materials*, 10.2138/am-2018-6141
- Ehleringer, J., Daniel, S., Torti, S., **Bowen, B.B.** and Parks, T., 2016, *Embedded in Nature: The University of Utah Field Stations*, ISBN 978-0-692-81221-1.
- Jewell, P.W., Nelson, D.T., **Bowen, B.B.**, and L.W. Raming, 2016, Insights into Lake Bonneville Using Remote Sensing and Digital Terrain Tools, in *Lake Bonneville: A Scientific Update*, edited by C.G. Oviatt and J.R. Shroder Jr., *Development in Earth Surface Processes*, v. 20, p. 598-614.
- Ward, M., **Bowen, B.**, Burian, S., Cachelin, A., and McCool, D., 2015, Institutionalizing interdisciplinary sustainability curriculum at a large, research-intensive university: Challenges and opportunities

Environmental Studies and Sciences: Environmental Studies and Science special issue on Interdisciplinary Environmental Studies Leadership, 1-7.

- Benison, K.C. and **Bowen, B.B.**, 2015, The evolution of end-member continental waters: the origin of acidity in Southern Western Australia: Geological Society of America Today, v. 25, no 6.
- Walsh, T.C., Miller, O.L., Bowen, B.B., Levine, Z.A., and Ehleringer, J.E., 2015, The sphere of sustainability: Lessons from the University of Utah's Global Change and Society course: Journal of Water Resources Planning and Management, v. 141, no. 12.
- Nielson, G.B., Chan, M.A., and **Bowen, B.**, 2014, Iron-rich horizons in the Jurassic Navajo Sandstone, southwestern Utah progressive cementation and permeability inversion, in MacLean, J.S., Biek, R.F., and Huntoon, J.E., editors, Geology of Utah's Far South: Utah Geological Association Publication 43.
- Bell, J. and Bowen, B.B., 2014, Fault-focused fluid flow in an acid and redox influenced system: Diagenetic controls on cement mineralogy and geomorphology in the Navajo Sandstone: Geofluids, v. 14, p. 251-265.
- Bowen, B.B., Story, S., Oboh-Ikuenobe, F., Benison, K.C.**, 2013, Differences in regolith weathering history at an acid and neutral saline lake on the Archean Yilgarn Craton and implications for acid brine evolution: Chemical Geology, v. 356, p. 126-167.
- Zhang, Y., Person, M., Rupp, J., Ellett, K., Celia, M., Gable, C.W., **Bowen, B.B.**, Evans, J., Bandilla, K., Mozley, P., Dewers, T., and Elliot, T., 2013, Hydrogeologic controls on induced seismicity in crystalline basement rocks due to fluid injection into basal reservoirs: Groundwater, doi: 10.1111/gwat.12071
- Benison, K.C. and **Bowen, B.B.**, 2013, Extreme sulfur-cycling in acid brine lake environments of Western Australia: Chemical Geology, v. 351, p. 154-167.
- VanDeVelde, J.H., Bowen, G.J., Passey, B.H., and Bowen, B.B., 2013, Climatic and diagenetic signals in the stable isotope geochemistry of dolomitic paleosols spanning the Paleocene-Eocene boundary: Geochimica et Cosmochimica Acta, v. 109, p. 254-267.
- Lovell, T.R., and Bowen, B.B., 2013, Fluctuations in sedimentary provenance of the Upper Cambrian Mount Simon Sandstone, Illinois Basin, United States: Journal of Geology, v. 121, p. 129-154.
- Neufelder, R.J., Bowen, B.B., Lahann, R.W., and Rupp, J.A., 2012, Lithologic, mineralogical, and petrophysical characteristics of the Eau Claire Formation: Complexities of a carbon storage system seal: Environmental Geosciences, v. 19, p. 81-104.
- Bowen, B.B., Bell, J., and Story, S.**, 2012, Remote and field-based imaging spectroscopy for the diagenetic mineralogy of sedimentary rocks. In Quantitative Mineralogy and Microanalysis of Sediments and Sedimentary Rocks (P. Sylvester, ed.). Mineralogical Association of Canada Short Course Series Volume 42, St. John's NL, May 2012, p. 115-132.
- Bowen, B.B., Benison, K.C., and Story, S.**, 2012, Early diagenesis by modern acid brines in Western Australia and implications for the history of sedimentary modification on Mars: Society for Sedimentary Geology Special Publication, Mars Sedimentology, eds., Grotzinger, J. and Milliken R., SEPM Special Publication No. 102, p. 229-252.
- Chan, M.A., Potter, S., **Bowen, B.B.**, Parry, W.T. Barge, L., Seiler, W., Peterson, E., and Bowman, J., 2012, Characteristics of ferric oxide concretions on Earth and Mars: Society for Sedimentary Geology Special Publication, Mars Sedimentology, eds., Grotzinger, J. and Milliken, R., SEPM Special Publication No. 102, p. 253-270.
- Bowen, B.B., Ochoa, R., Wilkens, N.D., Brophy, J., Lovell, T.R., Fischietto, N., Medina, C., and Rupp, J.**, 2011, Depositional and diagenetic variability within the Cambrian Mount Simon Sandstone: Implications for carbon dioxide sequestration: Environmental Geosciences, v.18, p. 69-89.
- Story, S., Bowen, B.B., Benison, K.C., and Schulze, D., 2010, Authigenic phyllosilicates in modern acid saline lake sediments and implications for Mars: Journal of Geophysical Research – Planets, v. 115, E12012.
- Bell, J.H., Bowen, B.B., and Martini, B., 2010, Imaging spectroscopy of jarosite cement in the Jurassic Navajo Sandstone: Remote Sensing of Environment, v. 114, p. 2259-2270.
- Bell, J., Bowen, B.B., and Martini, B., 2010, Spectroscopy of sulfates, clays, and iron oxides in the Jurassic Navajo Sandstone: Proceedings of the 2010 IEEE International Geoscience and Remote Sensing Symposium, July 25, 2010, p. 227-229.
- Bowen, B.B.** and Benison, K.C., 2009, Geochemical characteristics of naturally acid and alkaline saline lakes in southern Western Australia: Applied Geochemistry, v. 24, p. 268-284.

- Schreiner, K.M., Filley, T.R., Blanchette, R.A., **Bowen, B.B.**, Bolskar, R.D., Hockaday, W.C., Masiello, C.A., and Raebiger, J.W., 2009, White-rot basidiomycete-mediated decomposition of C60 fullerol: *Environmental Science and Technology*, v. 49, p. 3162-3168.
- Ogg, J. and **Bowen, B.B.**, 2009, *The Oceans: EAS 104*, Kendall Hunt Publishing Company, 164p.
- Bowen, G.J. and **Bowen, B.B.**, 2008, Mechanisms of PETM global change constrained by a new record from central Utah: *Geology*, v. 36, p. 379-382.
- Bowen, B.B.**, Benison, K.C., Oboh-Ikuenobe, F., Story, S., and Mormile, M., 2008, Active hematite concretion formation in modern acid saline lake sediments, Lake Brown, Western Australia: *Earth and Planetary Science Letters*, v. 268, p. 52-63.
- Bowen, G.J., Andrews, D., and **Bowen, B.B.**, 2008, Paleoenvironmental isotope geochemistry and paragenesis of lacustrine and palustrine carbonates, Flagstaff Formation, Central Utah, USA: *Journal of Sedimentary Research*, v. 78, p. 162-174.
- Benison, K.C., **Bowen, B.B.**, Oboh-Ikuenobe, F.E., LaClair, D.A., Jagniecki, E.A., Story, S.L., Mormile, M.R., and Hong, B.Y., 2007, Sedimentology of acid saline lakes in southern Western Australia: Newly described processes and products of an extreme environment: *Journal of Sedimentary Research*, v. 77, p. 366-388.
- Bowen, B.B.**, Martini, B.A., Chan, M.A., and Parry, W.T., 2007, Reflectance spectroscopic mapping of diagenetic heterogeneities and fluid flow pathways in the Jurassic Navajo Sandstone: *American Association of Petroleum Geologists Bulletin*, v. 91, p. 173-190.
- Parry, W.T., Forster, C.B., Evans, J.P., **Bowen, B.B.**, and Chan, M.A., 2007, Geochemistry of CO<sub>2</sub> sequestration in the Jurassic Navajo Sandstone, Colorado Plateau, Utah: *Environment Geosciences*, v. 14, p. 91-109.
- Benison, K.C. and **Bowen, B.B.**, 2006, Acid saline lake systems give clues about past environments and the search for life on Mars: *Icarus*, v. 183, p. 225-229.
- Chan, M.A., Parry, W.T., **Bowen, B.B.**, 2006, Red Rock Sandstone Color and Concretions of Grand Staircase-Escalante National Monument: Jurassic Navajo Sandstone Examples of Groundwater Flow, Science Resources, and Analogs to Mars. Proceedings of the Learning from the Land: Grand Staircase-Escalante National Monument Science Symposium, September 12-14, 2006, Cedar City, Utah.
- Souza-Egipsy, V., Ormö, J., **Bowen, B.B.**, Chan, M.A. and Komatsu, G., 2006, Ultrastructural study of iron oxide precipitates: Implications for the search for biosignatures in the Meridiani hematite concretions, Mars: *Astrobiology*, v. 6, no. 4, p. 527-545.
- Beitler, B.**, Parry, W.T., and Chan, M.A., 2005, Fingerprints of fluid flow: Chemical diagenetic history of the Jurassic Navajo Sandstone, southern Utah: *Journal of Sedimentary Research*, v. 75, p. 545-559.
- Chan, M.A., **Bowen, B.B.**, Parry, W.T., Ormo, J. and Komatsu, G., 2005, Red Rock and Red Planet Diagenesis: Comparisons of Earth and Mars concretions: *GSA Today*, v. 15, p. 4-10.
- Chan, M.A., **Beitler, B.**, and Parry, W.T., 2005, The Navajo Sandstone color palette and marvelous marbles: Canyon Legacy, Moab Museum publication, v. 54, p. 13-16.
- Coe, R.S., Stock, G.M., Lyons, J.J., **Beitler, B.**, and Bowen, G.J., 2005, Yellowstone hotspot volcanism in California? A paleomagnetic test of the Lovejoy flood basalt hypothesis: *Geology*, v. 33, p. 697-700.
- Beitler, B.**, Chan, M.A., Parry, W.T., Ormo, J. and Komatsu, G., 2004, Diagenetic analogs to hematite regions on Mars: examples from Jurassic sandstones of Southern Utah, USA: in Proceedings of SPIE Volume 5555, Instruments, Methods, and Missions for Astrobiology VIII, eds., Hoover, R.B., Levin, G.V., and Rozanov, A.Y., SPIE, Bellingham, WA, p. 162-169.
- Chan, M.A., **Beitler, B.**, Parry, W.T., Ormö, J. and Komatsu, G., 2004, A possible terrestrial analogue for hematite concretions on Mars: *Nature*, v. 429, p. 731-734.
- Ormö, J., Komatsu, G., Chan, M.A., **Beitler, B.**, and Parry, W.T., 2004, Geological features indicative of processes related to the hematite formation in Meridiani Planum and Aram Chaos, Mars: A comparison with diagenetic hematite deposits in southern Utah, USA: *Icarus*, v. 171, p. 295-316.
- Parry, W.T., Chan M.A. and **Beitler, B.**, 2004, Chemical Bleaching Indicates Episodes of Fluid Flow in Deformation Bands in Sandstone: *American Association of Petroleum Geologists Bulletin*, v. 88, p. 175-191.
- Beitler, B.**, Chan, M.A., and Parry, W.T., 2003, Bleaching of Jurassic Navajo Sandstone on Colorado Plateau Laramide Highs: Evidence of Exhumed Hydrocarbon Supergiants?: *Geology*, v. 31, p. 1041-1044.

**First Author Published Abstracts** (*student authors underlined*)

- Bowen, B.B.**, 2018, Adaptation, Mitigation, and Biophysical Feedbacks in the Changing Bonneville Salt Flats Lake Bonneville Geologic Conference, Utah Geological Society, Salt Lake City Utah, October 2018.
- Bowen, B.B.**, Harman, C.J., Kipnis, E.L., Liu, T., Bernau, J.A. Horel, J., 2017, Hydrologic connections between environmental and societal change at the Bonneville Salt Flats, Utah, in Hydrology, Society, and Environmental Change: Coupled Human-Water Dynamics Across Scales, American Geophysical Union National Meeting.
- Bowen, B.B.**, Pechmann, J., Kipnis, E., Lerback, J.C., Stinson, H., Wetterlin, L., Bernau, J.A., 2017, Evaluating Change at the Bonneville Salt Flats, Geological Society of America National Meeting.
- Bowen, B.B.**, 2016, Timescales and drivers of change at the Bonneville Salt Flats: Geological Society of America National Meeting.
- Bowen, B.B.**, 2015, Impacts of pore to regional scale variations in authigenic composition and texture on anthropogenically influenced fluid-rock interactions: American Geophysical Union Annual Meeting.
- Bowen, B.B.**, 2014, Sedimentology, mineralogy, geochemistry, and geomicrobiology of the Bonneville Salt Flats: Geologic Society of America National Meeting.
- Bowen, B.B.**, 2013, Interdisciplinary global change and sustainability education integrating earth and human systems: Geologic Society of America National Meeting.
- Bowen, B.B.**, Story, S., Benison, K.C., Oboh-Ikuenobe, 2012, Intense weathering of Archean basement associated with acid saline lakes in Western Australia: American Geophysical Union National Meeting.
- Bowen, B.B.**, Lovell, T., Neufelder, R., Rupp, J., Brophy, J., Lahann, R., 2011, Mineralogy and geochemistry of a potential CO<sub>2</sub> sequestration reservoir and seal system, Illinois Basin, USA: Goldschmidt Conference abstract, Mineralogical Magazine, v. 75, p. 566.
- Bowen, B.B.**, Ochoa, R., Wilkens, N.P., Neufelder, R., Lahann, R., Brophy, J., Medina, C., and Rupp, J., 2010, Distribution and abundance of potentially reactive minerals with geologic CO<sub>2</sub> sequestration in the Mount Simon - Eau Claire sedimentary system: AAPG Eastern Section Meeting, Kalamazoo, MI, September 25-29, 2010.
- Bowen, B.B.**, Benison, K.C., Oboh-Ikuenobe, F., Sanchez Botero, C.A., and Story, S., 2009, Preliminary analyses of ten new acid saline lake cores in Western Australia: Sedimentological, palynological, mineralogical, and geochemical analysis of spatial and temporal environmental changes in extreme environments: GSA Abstracts with Programs.
- Bowen, B.B.**, Rupp, J., Ochoa, R. and Fischietto, N., 2009, Depositional and Diagenetic Variability within the Cambrian Mount Simon Sandstone in the Illinois Basin: Implications for Carbon Dioxide Sequestration: AAPG Eastern Section Meeting, Evansville, Indiana, September 20-22, #90095.
- Bowen, B.B.**, Bell, J.H., Story, S., and Benison, K.C., 2008, Spectral properties of chemical sediments in modern acid saline lakes and implications for Mars: GSA Abstracts with Programs Vol. 40, Abstract 148321.
- Bowen, B.B.**, Benison, K.C., 2008, Sulfate mineral assemblages from Mars-analog environments I: Indicators of general environmental conditions: Goldschmidt meeting, Geochim. Cosmochim. Acta, v. 72, 12S, A106.
- Bowen, B.B.**, Benison, K.C., and Chan, M.A., 2007, How to make a martian sedimentary rock: Diversity in terrestrial processes leading to Mars analog features: GSA Abstracts with Programs Vol. 39, No. 6, Abstract No. 131678.
- Bowen, B.B.**, Benison, K.C., Oboh-Ikuenobe, F., and Mormile, M., 2007, Hematite concretions from modern acid saline lake sediments as geochemical and astrobiological tombs: 7<sup>th</sup> International Conference on Mars, Lunar and Planetary Institute, Pasadena, CA.; LPI Contributions, Report 1353, Abstract 3175.
- Bowen, B.B.**, & Benison, K.C., 2006, Chemical diversity of natural waters in the acid saline systems of south Western Australia: Geological Society of America Annual Meeting, Philadelphia, PA., GSA Abstracts with Programs vol. 38, no.7, p. 103.
- Bowen, B.B.**, Benison, K., Oboh-Ikuenobe, F., & Mormile, M., 2005, Hypersaline acid lakes in southwestern Australia as depositional and early diagenetic analogs for the Burns Formation on Mars: Geological Society of America Annual Meeting, Salt Lake City, UT.
- Bowen, B.B.**, Benison, K.C., Mormile, M.R., & Oboh-Ikuenobe, F.E., 2005, Preliminary geology, geochemistry, and biology of acid saline lakes in Western Australia and Victoria: 9<sup>th</sup> Conference, International Society for Salt Lake Research, Perth, Australia, p. 59-60.

- Beitler, B.**, Chan, M.A., & Parry, W.T., 2004, Geochemical and hyperspectral analysis of diagenetic alteration in the Jurassic Navajo Sandstone, southern Utah: Geological Society of America Annual Meeting, Denver, CO.
- Beitler, B.**, Chan, M.A., Parry, W.T., Ormö, J. & Komatsu, G., 2004, Spectral analysis of Chemical diagenesis related to concretionary iron oxide deposits in the Jurassic Navajo Sandstone: Implications for paleo-groundwater geochemistry on Mars: Geologic, hydrologic, and climatic evolution and the implications for life: Lunar and Planetary Institute conference, Jackson Hole, WY.
- Beitler, B.**, Ormö, J., Komatsu, G., Chan, M.A., & Parry, W.T., 2004, Geomorphic and Diagenetic Analogs to Martian Knobs, Bleaching, and Hematite Deposits in Jurassic Sandstones of Southern Utah, USA: Lunar and Planetary Science XXXV, Abstract 1289.
- Beitler, B.**, Chan, M.A., & Parry, W.T., 2003, Paleo-reservoir characteristics and diagenetic bleaching in the Jurassic Navajo Sandstone, Southern Utah: American Association of Petroleum Geologist Annual Meeting, Salt Lake City, UT.
- Beitler, B.**, Chan, M.A., & Parry, W.T., 2002, Field mapping and multispectral analysis of Jurassic Navajo Sandstone color and iron mineralization, Grand Staircase –Escalante National Monument, Utah: Geological Society of America Annual Meeting, Denver, CO.

### **Invited Presentations**

- 2019, OSHER (ballroom audience of 550 participants)
- 2018, Historical society of Utah
- 2018, UU Geology and Geophysics department open house (audience of ~400 public)
- 2017, Steger Center Green Bag, School of Law, UU, Dynamics of the Changing Bonneville Salt Flats
- 2017, Entrepreneurial Faculty, UU, displacement of valued landscapes, the role of natural resource extraction and environmental change
- 2017, American Association of University Women, Utah Convention, Overcoming Barriers to Workplace Success
- 2017, Hinckley Policy Institute, Campus Community Dialogue, The Economy and the Environment
- 2015, Alta Club and Friends of Alta, Geology and Mining History of the Wasatch Mountains

### **University Teaching Experience**

#### ***At the University of Utah (2012-current):***

- Global Changes and Society (SUST 6000: Spring 2013, 2014, 2015, 2016, 2017)
- Global Change and Sustainability Seminar (SUST 6800: Fall & Spring 2012, 2013, 2014, 2015)
- The Oceans (GEO 3800: Fall 2014, 2015, 2016, 2017, 2018)
- Sustainability STEM Undergraduate Seminar (UGS 1800, every semester)
- Energy and the Environment Praxis Lab (HONOR 3700-002: Fall 2015 & Spring 2016)

#### ***At Purdue University (2007-2012):***

- Introduction to Earth Science + lab (EAS 118: Spring 2012)
- Oceanography (EAS 104: Spring 2008, Spring 2010, Spring 2011)
- Topics in Geologic Remote Sensing (EAS 591B: Fall 2008, Fall 2011)
- Sedimentation and Stratigraphy + lab (EAS 474: Spring 2009)
- Topics in CO<sub>2</sub> Sequestration (EAS 591: Spring 2009)
- Diagenesis (EAS 591: Fall 2009)
- College of Science Dean's Honors Seminar (SCI 100: Fall 2009)

### **Graduate Students and Postdocs Advised**

- Jeremiah Bernau, current, Ph.D. (University of Utah), Sedimentology, diagenesis, and geomicrobiology of Bonneville Salt Flats
- Jory Lerback, current, Ph.D. (University of Utah), Geochemistry of Springs in the West Desert
- Evan Kipnis, current, Ph.D. (University of Utah), Hydrogeology of the Bonneville Salt Flats
- Thomas Lovell, 2015, Ph.D. (Purdue University), Detrital records of North American tectonism

- Alexander Gonzalez, 2013, M.S. (University of Utah), Geochemical and mineralogical evaluation of CO<sub>2</sub>-brine-rock experiments: Characterizing porosity and permeability variations in the Cambrian Mount Simon Sandstone
- Stacy Story, 2012, Ph.D. (Purdue University), Mineralogy of acid saline lake systems in southern Western Australia
- Julianne Bell, 2011, Ph.D. (Purdue University), Spectroscopy, mineralogy, and morphology of a jarosite-bearing landmark butte within the Jurassic Navajo Sandstone
- Nathan Wilkens, 2010-2011, Postdoctoral Researcher: Sedimentology of the Mount Simon Sandstone
- Ryan Neufelder, 2011, M.S. (Purdue University), Petrographic, mineralogical, and geochemical evidence of diagenesis in the Eau Claire Formation, Illinois Basin: Implications for sealing capability in a CO<sub>2</sub> sequestration system
- Raul Ochoa, 2010, M.S. (Purdue University), Porosity Characterization and Diagenetic Facies Analysis of the Cambrian Mount Simon Sandstone: Implications for a Regional CO<sub>2</sub> Sequestration Reservoir
- Nicholas Fischietto, 2009, M.S. (Purdue University), Lithofacies and Depositional Environments of the Cambrian Mount Simon Sandstone in the Northern Illinois Basin: Implications for CO<sub>2</sub> Sequestration

#### **Graduate Students – Advisory Committee Member**

- Annie Putnam, PhD current, University of Utah, Geology and Geophysics (advisor: Gabe Bowen)
- Courtney Wagner, PhD current, University of Utah, Geology and Geophysics (advisor: Pete Lippert)
- Casey Duncan, PhD current, University of Utah, Geology and Geophysics (advisor: Margie Chan)
- Crystal Tulley-Cordova, PhD 2018, University of Utah, Geology and Geophysics (advisor: Gabe Bowen)
- Logan Frederick, PhD 2018, University of Utah, Geology and Geophysics (advisor: Bill Johnson)
- Danielle Ward, MS 2017, University of Utah, Geography (advisor: Andrea Brunelle)
- Olivia Miller, PhD 2017, University of Utah, Geology and Geophysics (advisor: Kip Solomon)
- David Wheatley, PhD 2017, University of Utah, Geology and Geophysics (advisor: Margie Chan)
- Cory Johnson, MS 2016, University of Utah, Geology and Geophysics (advisor: Lisa Stright)
- Brennan Young, MS 2016, University of Utah, Geology and Geophysics (advisor: Margie Chan)
- David Blaire, PhD 2015, Purdue University, Planetary Science (advisors: Jay Melosh)
- Zachary Magdol, MS 2014, University of Utah, Civil and Environmental Engineering (advisor: Christine Pomeroy)
- Carlos Botero, PhD 2013, Missouri University of Science and Technology, palynology of acid saline lakes (advisor: Francesca Oboh-Ikuenobe)
- Justin VandeVelde, PhD 2012, Purdue University, isotope geochemistry (advisor: Gabe Bowen)
- Fan Wang, PhD 2012, Purdue University, atmospheric science and geochemistry (advisor: Greg Michalski)
- Heather Houton, MS 2010, Purdue University, geoscience education (advisor: Eric Riggs)
- Greg Nielsen, PhD 2010, University of Utah, geology (advisor: Margie Chan)

#### **Students Advised for Research Experiences within Interdisciplinary Graduate Programs**

- Jessica Pechmann, 2017, Professional Masters of Science and Technology, 3D GIS mapping of BSF
- Sach Combs, 2017, Professional Masters of Science and Technology, Solar energy elementary education
- Candace Penrod, 2016, Master of Science for Secondary School Teachers, Isotope geochemistry of BSF
- Teri Edwards, 2015, Professional Masters of Science and Technology, Sustainable aquaponics J.M.
- Hansen, 2013, Professional Masters of Science and Technology, Red Butte Creek

#### **Undergraduate Students supervised on Research Projects**

University of Utah (2013-current) - Jillian Turner (funding through Undergraduate Research Opportunity Program, UROP), Wren Raming (UROP, thesis), Savannah Cunningham, Olivia Watkins (UROP), Bradley Munk, Brad Kirk, Nathan Anderson (RBC), Greg Gavin (RBC), Memory Ware, Hannah Stinson (UROP), Lily

Wetterlin (UROP, SCIF), Tyler Young (Honors thesis), Amanda Jayo, Emily Kam (UROP), Gabrielle Regenhardt (iUTAH iFellow), Sean Hutchings (UROP), Mark Radwin

### **Peer Review Activities**

2005- present: Reviewer for Science, Geology, Geophysical Research Letters, Geochimica et Cosmochimica Acta, Earth and Planetary Science Letters, Geological Society of America Bulletin, Journal of Sedimentary Research, Geofluids, Palios, Mathematical Geoscience, Sensors, Rocky Mountain Geology, Applied Geochemistry, NSF- Low Temperature Geochemistry, NSF- Sedimentary Geology and Paleobiology, NSF- Coupled Natural Human Systems, NSF- Frontiers in Research in Earth Science, The International Science and Technology Center (U.S. Civilian Research and Development Foundation), NASA Astrobiology Institute, NASA Education and Outreach, NASA Mars Data Analysis Program, NASA Mars Fundamental Research, NASA Postdoctoral Program, American Chemical Society

### **Service and Synergistic Activities**

- External reviewer for University of Arkansas graduate sustainability certificate program (2019).
- Elected member of the National Academy of Science Board for Earth Science Resources (3 year term beginning 2018)
- Associate Editor of Journal of Sedimentary Research (beginning 2018)
- Guest instructor for the Master Recycler Program in the Salt Lake City Corporation Waste and Recycling Division in the Department of Sustainability (annually, 2016-present)
- Co-chaired Fall 2015 AGU session with Pete Reiners from University of Arizona on “Secondary Mineralization in Bedrock: Diagenesis, Cementation, Hydrothermal Precipitation, and the Interpretation of Paleofluid Flow”
- Serve on the University of Utah Sustainability Leadership Team, President’s Sustainability Advisory Board, and Environmental and Sustainability Studies Program Executive Committee
- Led development of new Interdisciplinary Graduate Certificate in Sustainability; collaboration between GCSC, Sustainability Office, and the Graduate School
- Leader in cross-campus efforts related to recognition of Red Butte Creek in Campus Master Plan, and integration of creek into academic mission of the U (included leadership of “Riparian Corridor Steering Committee”, presentations to President’s Cabinet and the Board of Trustees, faculty advisor for ASUU Friends of Red Butte Creek student group, etc.)
- Teach K-12 science enrichment
- Helped to coordinate SLC elementary school science fair judging
- Geological Society of America Sedimentary Geology Division Representative, Annual National Meeting Joint Technical Program Committee (2010-2011)
- Member of SEPM Award Nominating Committee (2010)

### **Professional Affiliations (current and previous)**

- Geological Society of America
- Society for Sedimentary Geology
- American Geophysical Union
- Geochemical Society
- Association for Women Geologists
- National Association of Geoscience Teachers

### **Research Media Coverage / Interviews**

- The New York Times, Nov. 21, 2019, Where Cars Try to Hit Mach 1, the Salt of the Earth Is Crumbling, By Paul Stenquist, <https://www.nytimes.com/2019/11/21/business/bonneville-salt-flats.html>
- CBS news, October 5, 2019, A bitter debate rages over the future of Utah's Bonneville Salt Flats, <https://www.cbsnews.com/news/utah-bonneville-salt-flats-racing-debate-rages-over-its-future-2019-10-05/>

