

Eric Gultinan

PERSONAL INFORMATION

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RESEARCH INTERESTS

Fluid flow in fractures, pore scale controls on multiphase flow behavior, carbon capture and storage, lattice Boltzmann modeling, environmental remediation

EDUCATION

Ph.D. Geology, UT Austin, Advisors: Dr. Bayani Cardenas and Dr. Nicolas Espinoza, Expected Spring 2018
Dissertation: *Multiphase Flow Properties of Sealing Caprocks for CO₂ Geological Storage*
M.S. Geology, Cal State Long Beach, Advisor: Dr. Matthew Becker, May 2012
Thesis: *Characterizing Well Connectivity in Fractured Bedrock with Harmonic Tests*
B.S. Hydrological Sciences, UC Santa Barbara, Spring 2007

WORK EXPERIENCE

Graduate Summer Intern, Sandia National Lab, Albuquerque, NM, Summer 2015
Senior Staff Geologist, Kennedy/Jenks Consultants, Irvine, CA, May 2012 - August 2013
Staff Geologist, AMEC, Irvine, CA, September 2010 - May 2012
Staff Geologist, AECOM, Long Beach, CA, September 2007 - May 2009

TEACHING EXPERIENCE

Teaching Assistant, UT Austin, *Field Methods in Hydrology*, Summer 2014
Teaching Assistant, UT Austin, *Physical Hydrogeology*, Fall 2016
Teaching Assistant, UT Austin, *Karst Hydrogeology*, Fall 2017

PUBLICATIONS

E. J. Gultinan, D. N. Espinoza, M. B. Cardenas *Multiphase fluid flow properties of rough fractures with heterogeneous wettability: analysis with lattice Boltzmann simulation*, In Prep
E. J. Gultinan, D. N. Espinoza, L. P. Cockrell, M. B. Cardenas, *Textural and Compositional Controls on Mudrock Breakthrough Pressure and Permeability*, Under Review, (2018)
E. J. Gultinan, M. B. Cardenas, P. C. Bennet, T. Zhang, D. N. Espinoza *The effect of organic matter and thermal maturity on the wettability of supercritical CO₂ on organic shales*, International Journal of Greenhouse Gas Control, 65, (2017), pp. 15-22
<https://doi.org/10.1016/j.ijggc.2017.08.006>
E. J. Gultinan, M. W. Becker *Measuring well hydraulic connectivity in fractured bedrock using periodic slug tests*, Journal of Hydrology, 521, (2015), pp. 100-107
<https://doi.org/10.1016/j.jhydrol.2014.11.066>
K. Chaudhary, **E. J. Gultinan**, M. B. Cardenas, J. A. Maisano, R. A. Ketcham, P. C. Bennett *Wettability measurement under high P-T conditions using X-ray imaging with application to the brine-supercritical CO₂ system*, Geochemistry, Geophysics, Geosystems, 16, (2015), pp. 2858-2864
<http://dx.doi.org/10.1002/2015GC005936>

EXAMPLE OF PROFESSIONAL PROJECTS

Water Supply Well Installation and ASR Managed multiple field crews during the installation of water supply wells to be used in conjunction with aquifer storage and recovery operations. Targeted water sampling identified zones of low contamination. Conducted long term pumping step tests to determine pumping capacity for local water agency.
Leviathan Mine Sonic Drilling Program Installed monitoring wells and piezometers using sonic

drilling during a five month long field project to characterize mine waste, acidic groundwater, and remediation possibilities. Logged and sampled soil and bedrock in a tectonically complex igneous environment in a remote area of the Sierra Nevada mountain range. Successfully applied rigorous safety standards exceeding the clients high expectations.

Groundwater Model of TCE Plume Assisted with groundwater flow model update through 2011. Collected, organized and reviewed available hydrogeologic and analytical data. Updated and managed database to produce modeling files. Assisted with pumping and injection well capture zone analysis in support of remediation efforts. Assisted in report and figure preparation.

Aquifer Testing Completed a successful \$500,000 dollar aquifer testing project. Performed initial cost gathering and proposal writing, scheduling and fieldwork, data reduction and analysis and final report writing. Spent 3 months in the field managing subcontractors to complete step tests, 24 hour tests and week long aquifer tests to characterize the aquifer properties beneath a former PVC manufacturer. Analyzed the data using Aqtesolv, Aquifer Test, and graphical techniques.

Dredge Material Characterization Conducted a chemical and geotechnical investigation of the Santa Ana River Marsh to evaluate dredge material disposal options. Assisted with development of the sampling and analysis plan and presented it to the U.S. EPA and Army Corps at the Dredge Material Management Team meeting. Reported directly to client throughout fieldwork. Collected and logged marine sediment samples using a vibracore. Collected beach transect samples for a chemical and geotechnical compatibility analysis using a ponar sampler. Collected deep ocean reference sediment from greater than 1500 feet for a Tier III biological analysis. Responsible for final report preparation.

PRESENTATIONS
AND POSTERS

Interpore, New Orleans, Spring 2018, *The wettability of organic rich shales and its effect on transport properties in fractures as realized with the Lattice Boltzmann method*

13th International Symposium on Reservoir Wettability, Austin, Spring 2018, *The effect of organic matter and thermal maturity on the wettability of supercritical CO₂ on organic shales*

Geofluids, Austin, Spring 2018, *Making synthetic mudstone: Parametric resedimentation studies at high effective stress to determine controls on breakthrough pressure and permeability*

American Geophysical Union, Fall Meeting, New Orleans, Fall 2017, *Making synthetic mudstone: Parametric resedimentation studies at high effective stress to determine controls on breakthrough pressure and permeability*

Energy Frontiers Research Center Annual Meeting, Washington D.C., Fall 2015, *Wettability and Its Relation to CO₂ Sequestration*

American Geophysical Union, Fall Meeting, San Francisco, Fall 2015, *The wettability of Shale by CO₂ and its impact on Geologic CO₂ Sequestration*

National Energy Technology Laboratory Annual Meeting, Pittsburgh, Summer 2015, *The Wettability of Shale by CO₂ and Its Impact on CO₂ Sequestration*

National Groundwater Association, Burlington, Fall 2011, *Harmonic Slug Tests for Determining Well Connectivity in Fractured Bedrock*

Geologic Society of America, Anaheim, Summer 2010, *Using Harmonic Hydraulic Tests to Estimate Fractured Bedrock Properties and Predict Local Heterogeneity*

SERVICE

Editor, Frontiers in Energy Research Newsletter www.energyfrontier.us/newsletter

Reviewer, Geophysical Research Letters, Journal of Hydrology, AAPG Bulletin, Water Resources Research

Representative, Early Career Network, Energy Frontiers Research Center

SOFTWARE

MATLAB, Python, C++, Fortran, Java, ArcGIS, Access, Modflow, L^AT_EX, PHREEQC, Aqtesolv