

Dennis L. Newell

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Professional Preparation

New Mexico Tech	Socorro, NM	Geology	BS (w/ Honors) 1992
Colorado State University	Fort Collins, CO	Geology	MS 1997
University of New Mexico	Albuquerque, NM	Earth & Plan. Sci.	PhD (w/ distinction) 2007
Los Alamos Nat. Lab	Los Alamos, NM	Earth & Env. Sci.	Postdoc 2007-2008

Appointments

2013 - Present	Assistant Professor of Geology, Utah State University, Logan, UT
2009-2012	Research Geochemist, Los Alamos National Laboratory, Los Alamos, NM
2008-2009	Visiting Professor (Geology), Western State College of Colorado, Gunnison, CO
2000-2004	Principal Geologist, Apogen Technologies, Inc., Los Alamos, NM
1998-2000	Technical Staff Member, Los Alamos National Laboratory, Los Alamos, NM

Recent Research Grants

2017- 2018 **Department of Energy DE-EE000673:** Geothermal Play Fairway analysis: Phase 3 (PI Shervais; Co-I Newell): \$1,000,000.

2016- 2019 **NSF-EAR-1623034 Tectonics/Petrology and Geochemistry:** Collaborative Research: Mantle to crust fluid transfer in an active flat-slab subduction zone - insights from Peruvian thermal spring geochemistry (PI Newell, with Co-I Jessup): \$438,391.

Selected Publications (*Newell student)

Google Scholar: <https://scholar.google.com/citations?user=N4V94iUAAAAJ&hl=en>

- Newell, D.L., *Jensen, J.L., Frantz, C.M., Vanden Berg, M.D., *in press*, Great Salt Lake (Utah) microbialite $\delta^{13}\text{C}$, $\delta^{18}\text{O}$, and $\delta^{15}\text{N}$ record fluctuations in lake biogeochemistry since the late Pleistocene: Geochemistry, Geophysics, and Geosystems. doi: 10.1002/2017GC007078. Available online 21 Sept. 2017.
- Reimus, P., Dean, C., and Newell, D., 2018, Evaluation of a cation-exchanging tracer to interrogate fracture surface area in enhanced geothermal systems: Geothermics, v. 71, p. 12-23. doi: 10.1016/j.geothermics.2017.08.002. Available online 21 August 2017.
- Newell, D.L., Jessup, M.J., Hilton, D.R., Shaw, C., and Hughes, C., 2015, Mantle-derived helium in hot springs of the Cordillera Blanca, Peru: implications for mantle-to-lithosphere fluid transfer in a flat slab subduction setting: Chemical Geology, v. 417, 200 – 209.
- Dean, C., Reimus, P., Leecaster, K., Oates, J., Rose, P., Newell, D., and Petty, S., 2015, Laboratory experiments to characterize cation-exchanging tracer behavior for fracture surface area estimation at Newberry Crater, OR: Geothermics, v. 53, 213-224.
- Newell, D.L., Larson, T.E., Perkins, G., Pugh, J.D., Stewart, B.W., Capo, R.C., and Trautz, R.C., 2014, Tracing CO₂ leakage into groundwater using carbon and strontium isotopes during a controlled CO₂ release field test: International Journal of Greenhouse Gas Control, v. 29, 200-208.
- Evans, J.P., Prante, M.R., Janecke, S.U., Ault, A.K., and Newell, D.L., 2014, Hot Faults: Iridescent slip surfaces with metallic luster document high-temperature ancient seismicity in the Wasatch fault zone, Utah, USA: Geology, doi: 10.1130/G35617.1

- Keating, E.H., **Newell, D.L.**, Dempsey, D., 2014, Insights into interconnections between the shallow and deep systems from a natural CO₂ reservoir near Springerville, Arizona: *Environmental Science & Technology*, v. 25, p. 162-172.
- Williams, A.J., Crossey, L.J., Karlstrom, K.E., **Newell, D.L.**, Person, M., and *Woolsey, E.*, 2013, Hydrogeochemistry of the Middle Rio Grande aquifer system - fluid mixing and salinization of the Rio Grande due to fault inputs: *Chemical Geology*, v. 351, p. 281-298.
- Newell, D.L.**, and Carey, W.J., 2013, Experimental evaluation of wellbore integrity along the cement-rock boundary: *Environmental Science and Technology*, v. 47, p. 276-282.
- Keating, E.H., **Newell, D.L.**, Viswanathan, H., Carey, J.W., Zyvoloski, G., and Pawar, R., 2013, CO₂/Brine Transport into Shallow Aquifers along Fault Zones: *Environmental Science & Technology*, v. 47, p. 290-297.
- Trautz, R., Pugh, J., Varadharajan, C., Zheng, L., Bianchi, M., Nico, P.S., Spycher, N., **Newell, D.L.**, Esposito, R.A., Wu, Y., Dafflon, B., Hubbard, S.S., and Birkholzer, J., 2013, Effect of Dissolved CO₂ on a Shallow Groundwater System—A Controlled Release Field Experiment: *Environmental Science & Technology*, v. 47, p. 298-305.
- Crossey, L.J., Karlstrom, K.E., Springer, A., **Newell, D.L.**, Hilton, D.R., and Fischer, T.P., 2009, Degassing of mantle-derived CO₂ and ³He from springs in the southern Colorado Plateau region - flux rates, neotectonic connections, and implications for groundwater systems: *GSA Bulletin*, v. 121, p. 1034-1053.
- Cottle, J.M., Jessup, M.J., **Newell, D.L.**, Horstwood, M.S.A., Noble, S.R., Parrish, R.R., Waters, D.J., and Searle, M.P., 2009, Geochronology of granulitized eclogite from the Ama Drime Massif: Implications for the tectonic evolution of the South Tibetan Himalaya: *Tectonics*, v. 28, p. TC1002, doi:10.1029/2008TC002256a.
- Newell, D.L.**, Kaszuba, J.P., Viswanathan, H.S., Pawar, R.J., and Carpenter, T., 2008, Significance of carbonate buffers in natural waters reacting with supercritical CO₂ - implications for Monitoring, Measuring and Verification (MMV) of geological carbon sequestration: *Geophysical Research Letters*, v. 35, p. L23403, doi: 10.1029/2008GL035615.
- Newell, D.L.**, Jessup, M.J., Cottle, J.M., Hilton, D., Sharp, Z., and Fischer, T., 2008, Aqueous and isotope geochemistry of mineral springs along the southern margin of the Tibetan plateau: Implications for fluid sources and regional degassing of CO₂: *Geochemistry, Geophysics, and Geosystems*, v. 9, p. Q08014, doi:10.1029/2008GC002021.
- Jessup, M.J., **Newell, D.L.**, Cottle, J.M., Berger, A.L., and Spotila, J.A., 2008, Orogen-parallel extension and exhumation enhanced by denudation in the trans-Himalayan Arun River gorge, Ama Drime Massif, Tibet-Nepal: *Geology*, v. 36, p. 587-590.
- Cottle, J.M., Jessup, M.J., **Newell, D.**, Searle, M.P., Law, R.D., and Horstwood, M., 2007, Structural insights into the early stages of exhumation along an orogen-scale detachment: The South Tibetan Detachment System, Dzaka Chu section, Eastern Himalaya: *Journal of Structural Geology*, v. 29, p. 1781-1797.
- Crossey, L.J., Fischer, T.P., Patchett, P.J., Karlstrom, K.E., Hilton, D.R., Huntoon, P., **Newell, D.L.**, and Reynolds, A., 2006, Dissected hydrologic system at the Grand Canyon: Interaction between deeply derived fluids and plateau aquifer waters in modern springs and travertine: *Geology*, v. 34, p. 25-28.
- Newell, D.L.**, Crossey, L.J., Karlstrom, K.E., Fischer, T.P., and Hilton, D.R., 2005, Continental-scale links between the mantle and groundwater systems of the Western United States: Evidence from travertine springs and regional He isotope data: *GSA Today*, v. 15, p. 4-10.

Graduate Students

Brandt Scott, MS student, 2016 – present
 Ashley Provow, MS student, 2016 – present
 Jace Koger, MS student, 2014 – present (expected completion 12/2016)
 Trevor Atkinson, MS Geology, 2013 – 2015