

# ERIC SEEDORFF

## Selected Publications and Theses Advised

### Selected Publications

Favorito, D. A., and Seedorff, E., 2024, Temporal and spatial relations between porphyry copper deposits and crustal shortening: Insights from the Laramide arc of Arizona and New Mexico: *Economic Geology*, v. 119, p. 1261-1288.

Richardson, C. A., and Seedorff, E., 2024, Contrasting constraints on the temporal and spatial extents of normal faults from the Hilltop and Lewis mining districts, northern Shoshone Range, Nevada, USA: *Geosphere*, v. 20, no. 3, p. 647– 677.

Richardson, C. A., and Seedorff, E., 2023, Exploring for structurally concealed Carlin-type mineralization: A case study from the northern Shoshone Range, Nevada, USA: *Ore Geology Reviews*, v. 163, 105738.

Seedorff, E., Favorito, D. A., Richardson, C. A., Nickerson, P. A., and Maher, D. J., 2022, Geometry and evolution of normal faults formed during lithospheric extension of continents, with applications to Cordilleran metamorphic core complexes, *in* Koutz, F. R., ed., *Vision for discovery: Geology and ore deposits of the Basin and Range: Geological Society of Nevada Symposium*, Reno/Sparks, May 2022, Proceedings, 79 p.

Lewis, K. A., and Seedorff, E., 2022, The Cochise deposit, Warren (Bisbee) district, Arizona: A Jurassic porphyry copper system with preserved leached cap and chalcocite blanket, *in* Koutz, F. R., ed., *Vision for discovery: Geology and ore deposits of the Basin and Range: Geological Society of Nevada Symposium*, Reno/Sparks, May 2022, Proceedings, 37 p.

Carlini, D. V., and Seedorff, E., 2022, Age and hydrothermal alteration, Gold Road vein, Oatman district, Mohave County, Arizona, and possible differences in origin of epithermal gold deposits along the Colorado River, *in* Koutz, F. R., ed., *Vision for discovery: Geology and ore deposits of the Basin and Range: Geological Society of Nevada, Symposium*, Reno/Sparks, May 2022, Proceedings, 35 p.

Favorito, D. A., and Seedorff, E., 2021b, Laramide structure of southeastern Arizona: Role of basement-cored uplifts in shallow-angle subduction: *Geological Society of America Bulletin*, v. 134, p. 989-1017.

Favorito, D. A., and Seedorff, E., 2021a, Cenozoic structural evolution of the Catalina metamorphic core complex and reassembly of Laramide reverse faults, southeastern Arizona, USA: *Geosphere*, v. 17, p. 1928-1971.

Kassela, M. A., and Seedorff, E., 2020, Austin pluton and Reese River mining district, central Nevada: Magmatism, alteration, ore formation, and post-ore dismemberment and tilting, *in* Koutz, F. R., and Pennell, W. M., eds., *Vision for discovery: Geology and ore deposits of the Basin and Range: Geological Society of Nevada, Symposium*, Reno/Sparks, May 2020, Proceedings, p. 1237-1271.

Wallenberg, A. L., and Seedorff, E., 2020, Gregg Canyon intrusive center, Sonoma Range, Nevada: Magmatism and porphyry-style alteration-mineralization, *in* Koutz, F. R., and Pennell, W. M., eds., *Vision for discovery: Geology and ore deposits of the Basin and Range, Geological Society of Nevada 2020 Symposium*, Reno/Sparks, May 2020, Proceedings, p. 1425-1454.

Favorito, D. A., and Seedorff, E., 2020, Laramide uplift near the Ray and Resolution porphyry copper deposits, southeastern Arizona: Insights into regional shortening style, magnitude of uplift, and implications for exploration: *Economic Geology*, v. 115, p. 153-175,

Runyon, S. E., Seedorff, E., Barton, M. D., Steele-MacInnis, M. J., Lecumberri-Sánchez, P., and Mazdab, F. K., 2019, Coarse muscovite veins and alteration in porphyry systems: *Ore Geology Reviews*, v. 113, 103045.

Zaffron, S., Poulton, M., Loffredi, O., and Seedorff, E., 2019, The new face of mining; Breakthroughs in results leveraging the people factor: *Mining Engineering*, v. 71, no. 10, October 2019, p. 38-43.

Seedorff, E., Barton, M. D., Gehrels, G. E., Valencia, V. A., Johnson, D. A., Maher, D. J., Stavast, W. J. A., and Marsh, T. M., 2019b, Temporal evolution of the Laramide arc: U-Pb geochronology of plutons associated with porphyry copper mineralization in east-central Arizona, *in* Pearthree, P. A., ed., *Geologic excursions in southwestern North America: Geological Society of America Field Guide 55*, p. 369-400.

Richardson, C. A., Favorito, D. A., Runyon, S. E., Seedorff, E., Maher, D. J., Barton, M. D., and Greig, R. E., 2019, Superimposed Laramide contraction, porphyry copper systems, and Cenozoic extension, east-central Arizona: A road log, *in* Pearthree, P. A., ed., *Geologic excursions in southwestern North America: Geological Society of America Field Guide 55*, p. 337-367.

Seedorff, E., Richardson, C. A., Favorito, D. A., Barton, M. D., and Greig, R. E., 2019a, Crustal shortening and porphyry copper mineralization in the Laramide arc and superimposed extension: Introduction and themes, *in* Pearthree, P. A., ed., *Geologic excursions in southwestern North America: Geological Society of America Field Guide 55*, p. 319-335.

Runyon, S. E., Nickerson, P. A., Seedorff, E., Barton, M. D., Mazdab, F. K., Lecumberri-Sánchez, P., and Steele-MacInnis, M. J., 2019, Sodic-calcic family of alteration in porphyry systems of Arizona and adjacent New Mexico: *Economic Geology*, v. 114, p. 745-770.

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Favorito, D. A., and Seedorff, E., 2018, Discovery of major basement-cored uplifts in the northern Galiuro Mountains, southeastern Arizona: Implications for regional Laramide deformation style and structural evolution: *Tectonics*, v. 37, p. 3916-3940.

Runyon, S. E., Steele-MacInnis, M. J., Seedorff, E., Lecumberri-Sánchez, P., and Mazdab, F. K., 2017, Coarse muscovite veins and alteration deep in the Yerington batholith, Nevada: Insights into fluid exsolution in the roots of porphyry copper systems: *Mineralium Deposita*, v. 52, p. 463-470.

Favorito, D. A., and Seedorff, E., 2017, Characterization and reconstruction of Laramide shortening and superimposed Cenozoic extension, Romero Wash-Tecolote Ranch area, southeastern Arizona: *Geosphere*, v. 13, p. 577-607.

Richardson, C. A., and Seedorff, E., 2017, Estimating friction in normal fault systems of the Basin and Range province and examining its geological context, *in* Turner, J. P., Healy, D., Hillis, R. R., and Welch, M. J., eds., *Geomechanics and geology: Geological Society of London Special Publication 458*, p. 155-179.

Nickerson, P. A., and Seedorff, E., 2016, Dismembered porphyry systems near Wickenburg, Arizona: District-scale reconstruction with an arc-scale context: *Economic Geology*, v. 111, p. 447-466.

Pape, J. R., Seedorff, E., Baril, T. C., and Thompson T. B., 2016, Structural reconstruction and age of an extensionally faulted porphyry molybdenum system at Spruce Mountain, Elko County, Nevada: *Geosphere*, v. 12, p. 237-263.

Seedorff, E., Richardson, C. A., and Maher, D. J., 2015, Fault surface maps: Three-dimensional structural reconstructions and their utility in exploration and mining, *in* Pennell, W. M., and Garside, L. J., eds., *New concepts and discoveries: Geological Society of Nevada, Symposium, Reno/Sparks, May 2015, Proceedings*, v. 2, p. 1179-1206.

Hoge, A. K., Seedorff, E., Barton, M. D., Richardson, C. A., and Favorito, D. A., 2015, The Jackson-Lawton-Bowman normal fault system and its relationship to Carlin-type gold mineralization, Eureka district, Nevada, *in* Pennell, W. M., and Garside, L. J., eds., *New concepts and discoveries: Geological Society of Nevada, Symposium, Reno/Sparks, May 2015, Proceedings*, v. 2, p. 967-1000.

Richardson, C. A., and Seedorff, E., 2015, Reconstruction of normal fault blocks in the Ann-Mason and Blue Hill areas, Yerington district, Lyon County, western Nevada, *in* Pennell, W. M., and Garside, L. J., eds., *New concepts and discoveries: Geological Society of Nevada, Symposium, Reno/Sparks, May 2015, Proceedings*, v. 2, p. 1153-1178.

Runyon, S. E., Barton, M. D., Dilles, J. H., Ohlin, H. N., Seedorff, E., Carpenter, K., and Johnson, D. A., 2015, Iron oxide-rich mineralization and related alteration in the Yerington district, Lyon County, Nevada, *in* Pennell, W. M., and Garside, L. J., eds., *New concepts and discoveries: Geological Society of Nevada, Symposium, Reno/Sparks, May 2015, Proceedings*, v. 1, p. 251-283.

Vikre, P. G., Graybeal, F. T., Fleck, R. J., Barton, M. D., and Seedorff, E., 2014, Succession of Laramide magmatic and magmatic-hydrothermal events in the Patagonia Mountains, Santa Cruz County, Arizona: *Economic Geology*, v. 109, no. 6, p. 1667-1704.

Barton, M. D., Girardi, J. D., Kreiner, D. C., Seedorff, E., Zurcher, L., Dilles, J. H., Haxel, G. B., and Johnson, D. A., 2011, Jurassic igneous-related metallogeny of southwestern North America, *in* Steininger, R. C., and Pennell, W. M., eds., *Great Basin evolution and metallogeny: Geological Society of Nevada, Symposium, Reno/Sparks, May 2010, Proceedings*, v. 1, p. 373-396.

Nickerson, P. A., Barton, M. D., and Seedorff, E., 2010, Characterization and reconstruction of multiple copper-bearing hydrothermal systems in the Tea Cup porphyry system, Pinal County, Arizona, *in* Goldfarb, R. J., Marsh, E. E., and Monecke, T., eds., *The challenge of finding new mineral resources: Global metallogeny, innovative exploration, and new discoveries: Society of Economic Geologists Special Publication 15, Volume I. Gold, silver and copper-molybdenum*, p. 299-316.

Eichenlaub, A. B., and Seedorff, E., 2008, Exploration of genetic links between breccia pipes and porphyry copper deposits in a Laramide hydrothermal system, Sombrero Butte, Pinal County, Arizona, USA, *in* Spencer, J. E., and Titley, S. R., eds., *Ores and orogenesis: Circum-Pacific tectonics, geologic evolution, and ore deposits: Arizona Geological Society Digest 22*, p. 591-599.

Seedorff, E., Barton, M. D., Stavast, W. J. A., and Maher, D. J., 2008, Root zones of porphyry systems: Extending the porphyry model to depth: *Economic Geology*, v. 103, p. 939-956.

Stavast, W. J. A., Butler, R. F., Seedorff, E., Barton, M. D., and Ferguson, C. A., 2008, Tertiary

tilting and dismemberment of the Laramide arc and related hydrothermal systems, Sierrita Mountains, Arizona: *Economic Geology*, v. 103, p. 629-636.

Seedorff, E., Dilles, J. H., Proffett, J. M., Jr., Einaudi, M. T., Zurcher, L., Stavast, W. J. A., Johnson, D. A., and Barton, M. D., 2005, Porphyry deposits: Characteristics and origin of hypogene features, *in* Hedenquist, J. W., Thompson, J. F. H., Goldfarb, R. J., and Richards, J. P., eds., *Economic Geology* 100th Anniversary Volume, p. 251-298.

Barton, M. D., Brown, J. G., Haxel, G. B., Hayes, T. S., Jensen, E. P., Johnson, D. A., Kamilli, R. J., Long, K. R., Maher, D. J., and Seedorff, E., 2005, Center for Mineral Resources: U. S. Geological Survey-University of Arizona, Department of Geosciences Porphyry Copper Deposit Life Cycles Field Conference, Southeastern Arizona, May 21-22, 2002: U. S. Geological Survey Scientific Investigations Report 2005-5020, 50 p.

Seedorff, E., and Barton, M. D., 2004, Enigmatic origin of Carlin-type deposits: An amagmatic solution?: *SEG Newsletter*, no. 59, p. 14-18.

Seedorff, E., and Einaudi, M. T., 2004a, Henderson porphyry molybdenum system, Colorado: I. Sequence and abundance of hydrothermal mineral assemblages, flow paths of evolving fluids, and evolutionary style: *Economic Geology*, v. 99, p. 3-37.

Seedorff, E., and Einaudi, M. T., 2004b, Henderson porphyry molybdenum system, Colorado: II. Decoupling of introduction and deposition of metals during geochemical evolution of hydrothermal fluids: *Economic Geology*, v. 99, p. 39-72.

Gans, P. B., Seedorff, E., Fahey, P. L., Hasler, R. W., Maher, D. J., Jeanne, R. A., and Shaver, S. A., 2001, Rapid Eocene extension in the Robinson district, White Pine County, Nevada: Constraints from  $^{40}\text{Ar}/^{39}\text{Ar}$  dating: *Geology*, v. 29, p. 475-478.

Seedorff, E., 1991a, Magmatism, extension, and ore deposits of Eocene to Holocene age in the Great Basin--Mutual effects and preliminary proposed genetic relationships, *in* Raines, G. L., Lisle, R. E., Schafer, R. W., and Wilkinson, W. H., eds., *Geology and ore deposits of the Great Basin*: Geological Society of Nevada, Symposium, Reno/Sparks, April 1990, Proceedings, v. 1, p. 133-178.

Seedorff, E., 1991b, Royston district, western Nevada: A Mesozoic porphyry copper system that was tilted and dismembered by Tertiary normal faults, *in* Raines, G. L., Lisle, R. E., Schafer, R. W., and Wilkinson, W. H., eds., *Geology and ore deposits of the Great Basin*: Geological Society of Nevada, Symposium, Reno/Sparks, April 1990, Proceedings, v. 1, p. 359-391.

Seedorff, E., Bailey, C. R. G., Kelley, D., and Parks, W., 1991, Buffalo Valley mine: A porphyry-related gold deposit, Lander County, Nevada, *in* Buffa, R., and Coyner, A. R., eds., *Field Trip Guidebook Compendium, Geology and ore deposits of the Great Basin*: Geological Society of Nevada, Symposium, Reno/Sparks, April 1990, v. 2, p. 969-987.

Seedorff, E., 1988, Cyclic development of hydrothermal mineral assemblages related to multiple intrusions at the Henderson porphyry molybdenum deposit, Colorado, *in* Taylor, R. P., and Strong, D. F., eds., *Recent advances in the geology of granite-related mineral deposits*: Canadian Institute of Mining and Metallurgy Special Volume 39, p. 367-393.

## Completed PhD, MS, and PSM theses for which I was principal advisor (alphabetical)

Carlini, D. V., 2021, Age and hydrothermal alteration, Gold Road vein, Oatman district, northwestern Arizona, and possible differences in origin of epithermal gold deposits along the Colorado River: Unpublished M. S. thesis, Tucson, University of Arizona, 65 p.

Cornoyer, J. M., 2021, Revised interpretation of the structural geology of the Ray deposit, Mineral Creek mining district, Pinal County, Arizona: Unpublished P. S. M. thesis, Tucson, University of Arizona, 33 p.

Early, Andrew Scott, 2016, Structural reconstruction of the Twin Buttes deposit, Pima County, Arizona: Unpublished P. S. M. thesis, Tucson, University of Arizona, 62 p.

Eichenlaub, Amy B., 2007, Exploration of genetic links between breccia pipes and porphyry copper deposits in a Laramide hydrothermal system, Sombrero Butte, Pinal County, Arizona: Unpublished M. S. thesis, Tucson, University of Arizona, 118 p.

Fajardo, Juan Francisco, 2015, Fault-surface restorations and epidote compositions at San Manuel-Kalamazoo porphyry copper deposit, Arizona: Unpublished P. S. M. thesis, Tucson, University of Arizona, 106 p.

Favorito, Daniel Anthony, 2016, Characterization and reconstruction of Laramide deformation and porphyry-style alteration in the Romero Wash-Tecolote Ranch area, southeastern Arizona: Unpublished M. S. thesis, Tucson, University of Arizona, 106 p.

Favorito Daniel Anthony, 2020, Laramide crustal shortening and Cenozoic extensional overprint in southeastern Arizona: Insights from structural reconstructions and relation to porphyry copper systems: Unpublished Ph. D. thesis, Tucson University of Arizona, 383 p.

Gil-Rodríguez, Javier, 2010, Igneous petrology of the Colosa gold-rich porphyry system (Tolima, Colombia): Unpublished P. S. M. thesis, Tucson University of Arizona, 51 p.

González Garzón, Germán Eduardo, 2010, Petrographic characterization of two gold-rich banded iron formations (BIFs) in the Foxe fold belt, Baffin Island, Canada: Unpublished P. S. M. thesis, Tucson, University of Arizona, 51 p.

Hoge, Aryn Kinley, 2014, The Jackson-Lawton-Bowman normal fault system and its relationship to Carlin-type gold mineralization, Eureka district, Nevada: Unpublished M. S. thesis, Tucson University of Arizona, 55 p.

Kassela, Michael Aaron, 2019, Austin pluton and Reese River mining district, central Nevada: Magmatism, alteration, ore formation, and post-ore dismemberment and tilting: Unpublished M. S. thesis, Tucson, University of Arizona, 105 p.

Keeler, David A., 2010, Structural reconstruction of the Copper Basin area, Battle Mountain district, Nevada: Unpublished M. S. thesis, Tucson, University of Arizona, 92 p.

Lewis, Kyle Allen, 2021, Geology and mineralization of the undeveloped Cochise supergene porphyry copper deposit, Warren (Bisbee) mining district, Cochise County, Arizona: Unpublished P. S. M. thesis, Tucson, University of Arizona, 103 p.

McCarrel, Michael Joseph, 2012, Characterization and correlation of skarn mineralization and protoliths, Resolution porphyry copper deposit, Superior district, Arizona: Unpublished M. S. thesis, Tucson, University of Arizona, 66 p.

Melgar Pauca, Mauro Joel, 2014, Epithermal mineralization associated with diatreme breccia and rhyolitic dome, La Miel, Haiti: Unpublished M. S. thesis, Tucson, University of Arizona, 101 p.

Mendoza Inca, Nirio, 2010 Geology, grade distribution, and metal ratios at the Amaro gold-copper porphyry deposit, Minas Conga district, Cajamarca province, Perú: Unpublished P. S. M. report, Tucson, University of Arizona, 73 p.

Nickerson, Phillip Anson, 2012, Post-mineral normal faulting in Arizona porphyry systems: Unpublished Ph. D. thesis: Tucson, University of Arizona, 310 p.

O'Neal, Sean Patrick, 2015, Characterization of two centers of porphyry-style Cu-(Mo) alteration in the western Superior mining district, Arizona: Unpublished Professional Science Master's in Economic Geology thesis, University of Arizona, 106 p.

Pape, James Russell, 2010, Reconstruction of extensional faulting northeastern Nevada within the southern Ruby Mountains metamorphic core complex and adjacent area, northeastern Nevada: Unpublished M. S. thesis, Tucson, University of Arizona, 99 p.

Perea Trejo, Daniel Alejandro, 2019, Submarine volcanic rocks in the Mesa Central, Zacatecas, Mexico: Unpublished P. S. M. report, Tucson, University of Arizona, 63 p.

Pilco Saraza, Richard Rolando, 2011, Hypogene alteration, sulfide mineralogy, and metal distribution at Cerro Yanacocha high-sulfidation epithermal deposit, northern Perú: Unpublished P. S. M. thesis, Tucson, University of Arizona, 89 p.

Pinto Ames, Rita M., 2006, Geology and mineral zoning of the San Cirilo intrusive complex, Cajamarca Province, northern Peru: Unpublished M. S. thesis, Tucson, University of Arizona, 67 p.

Richardson, Carson Adam, 2014, Reconstruction of normal fault blocks in the Ann-Mason and Blue Hill areas, Yerington district, Nevada: Unpublished M. S. thesis, Tucson University of Arizona, 107 p.

Richardson, Carson Adam, 2019, Extensional deformation and ore deposits along a transect through northern Nevada: Unpublished Ph. D. thesis, Tucson, University of Arizona, 304 p.

Ríos Vargas, Christian César, 2008, The geology of Santa Ana, a newly discovered epithermal silver deposit, Puno province, Peru: Unpublished M. S. thesis, Tucson, University of Arizona, 95 p.

Runyon, Simone E., 2017, Deep hydrothermal alteration in porphyry copper systems: Insights from the Laramide arc: Unpublished Ph. D. thesis, Tucson, University of Arizona, 624 p.

Schottenfeld, Mariel T., 2012, Structural analysis and reconstruction of the southern end of the Pumpkin Hollow deposit, Yerington district, Nevada: Unpublished M. S. thesis, University of Arizona, 50 p. plus unpaginated figures and appendices.

Stavast, William J. A., 2006, Three-dimensional evolution of magmatic hydrothermal systems, Schultze Granite and Ruby Star Granodiorite, Arizona: Unpublished Ph. D. thesis, Tucson, University of Arizona, 414 p.

Strugatskiy, Alexandr, 2008, Structural reconstruction and reinterpretation of the area near Happy Valley, Little Rincon Mountains, southeastern Arizona: Unpublished M. S. thesis, Tucson, University of Arizona, 59 p.

Wallenberg, Alexandra L. "Lexi", 2020, Gregg Canyon intrusive center, Sonoma Range, Nevada: Magmatism and porphyry-style alteration-mineralization: Unpublished M. S. thesis, Tucson, University of Arizona, 110 p.

Winant, Alexander Raine, 2010, Sericitic and advanced argillic mineral assemblages and their relationship to copper mineralization, Resolution porphyry Cu-(Mo) deposit, Superior district, Pinal County, Arizona: Unpublished M. S. thesis, Tucson, University of Arizona, 79 p.