

MARK PERSON

NM Tech, Department of Earth & Environmental Sciences
801 Leroy Place, MSEC 208
Socorro, NM 87801
phone: 575-835-6506
cell: 575-517-7578
email: mark.person@nmt.edu

EDUCATION

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|-----------------|------|---|
| B.A., Geology | 1980 | Franklin and Marshall College |
| M.S., Hydrology | 1984 | New Mexico Institute of Mining and Technology |
| M.S., Geology | 1987 | The Johns Hopkins University |
| Ph.D., Geology | 1990 | The Johns Hopkins University |

EMPLOYMENT HISTORY

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| 1982-1985 | Hydrologist, U.S. Geological Survey, Reston, VA |
| 1985-1990 | Graduate Research Assistant, The Johns Hopkins University |
| 1990 | Postdoctoral Fellow, Ecole des Mines de Paris |
| 1991-1993 | Assistant Professor, University of New Hampshire |
| 1993-1997 | Assistant Professor & Gibson Chair of Hydrogeology, University of Minnesota |
| 1997-2001 | Associate Professor & Gibson Chair of Hydrogeology, University of Minnesota |
| 2001 | Professor & Gibson Chair of Hydrogeology, University of Minnesota |
| 2001-2009 | Professor & Boyce Chair of Geosciences, Indiana University |
| 2009-present | Professor, NM Tech |

PROFESSIONAL SOCIETY MEMBERSHIPS

1. Geological Society of America
2. American Association of Petroleum Geologists
3. National Water Well Association
4. American Geophysical Union

ACHIEVEMENTS, HONORS, AND AWARDS

1. O.E. Meinzer Award, Hydrogeology Division, Geological Society of America, 2021
2. New Mexico Tech Distinguished Research Award, 2016
3. Editor, Geofluids (2011-2016)
4. Herbertte Foundation Fellow, University of Lausanne, Switzerland, 2005.
5. Fellow, Geological Society of America, 2003.
6. Birdsall-Dreiss Distinguished Lecturer, Geological Society of America, 1997.

PUBLICATIONS

1. Schweinfurth, S., Hickling, N., and **M. Person**, 1982, Geologic map of the Allegheny Front and Hickory Creek Roadless Areas, Warren County, Pennsylvania, U.S. Geological Survey, Miscellaneous Field Studies, MF-1442-A.
2. Schweinfurth, S., Hickling, N., and **M. Person**, 1982, Geologic map of the Clarion River Roadless Areas, Elk County, Pennsylvania, U.S. Geological Survey, Miscellaneous Field Studies, MF-1444-A.
3. **Person, M.**, Antle, R., and D. Stephens, 1983, Evaluation of surface impoundment assessment in New Mexico, *Ground Water*, v. 21, p. 679-688.
4. Konikow, L. and **M. Person**, 1985, Assessment of long-term salinity changes in an irrigated stream-aquifer system, *Water Resources Research*, v. 21, p. 1611-1624.
5. **Person, M.** and L. Konikow, 1986, Recalibration and predictive reliability of a solute transport model of an irrigated stream-aquifer system, *Journal of Hydrology*, 87, v. p. 145-165.
6. Phillips, F., **Person, M.**, and A. Muller, 1986, A numerical lumped-parameter model for simulating the isotopic evolution of closed-basin lakes, *Journal of Hydrology*, v. 85, p. 73-86.
7. **Person, M.** and G. Garven, 1989, Hydrologic constraints on the thermal evolution of the Rhine Graben, in Geophysical Monograph Series 47, International Union of Geodesy and Geophysics, v. 2, American Geophysical Union, A. E. Beck, G. Garven, and L. Stegna (editors), p. 35-58.
8. Person, M. and G. Garven, 1992, Hydrologic constraints on petroleum generation within continental rift basins: Theory and application to the Rhine Graben, *American Association of Petroleum Geologists Bulletin*, v. 76, p. 468-488.
9. Garven, G., Ge, S., **Person, M.**, and D. Sverjenski, 1993, Genesis of stratabound ore deposits in the midcontinent basins of North America. 1. The role of groundwater flow, *American Journal of Science*, v. 293, p. 497-568.
10. Vorosmarty, C. J., Gutowski, W. J., **Person, M.**, Chen, T.C., and D. Case, 1993, Linked Atmosphere-hydrology models at the Macroscale, (in) *Macroscale Modelling of the Hydrosphere* (Proceedings of the Yokohama Symposium, July, 1993), IAHS Publ. 214, p. 3-27.
11. **Person, M.** and G. Garven, 1994, A sensitivity study of the driving forces on fluid flow during continental rift basin evolution, *Geological Society of America Bulletin*, v. 106, p. 461-475.
12. Rhea, L., **Person, M.**, de Marsily, G., Ledoux, E., and A. Galli, 1994, Geostatistical Models of Secondary Petroleum within Heterogeneous Carrier Beds: A Theoretical Example, *American Association of Petroleum Geologists*, v. 78, p. 1679-1691.
13. Day-Lewis, F., **Person, M.**, Konikow, L. F., 1995, Documentation of MacPump: An interactive pumping test Analysis Program for the MacIntosh Computer, U.S. Geological Survey Open-File Report 95-4012, 32 p.

14. Gerdes, M., Baumgartner, L., **Person, M.**, and D. Rumble, 1995, One- and two-dimensional models of stable isotope exchange at an outcrop in the Adamello contact aureole, Southern Alps, *American Mineralogists*, v. 80, p. 1004-1019.
15. Gerdes, M., Baumgartner, L., and **M. Person**, 1995, Permeability heterogeneity in metamorphic rocks: Implications from stochastic modeling, *Geology*, v. 23, p. 945-948.
16. Paola, C., Alexander, C.E., Edwards, R.L., Hudleston, P. J., Ito, E., Karato, S.I., Kelts, K.R., Kleinsphen, K.L., Moskowitz, B.M., **Person, M.**, Seyfried, W.E., Sloan, R.E., Stout, J., Teysier, C., Tikoff, B., 1995, Geodynamics as the center of a new Earth-Science Curriculum and the theme of a new undergraduate laboratory, *Journal of Geological Education*, v. 43, p. 485-491.
17. **Person, M.** and L. Baumgartner, 1995, New Evidence for Long-Distance Fluid Migration within the Earth's Crust, *Reviews of Geophysics, U.S. Report to the IUGG – Contributions in Hydrology*, v. 33, p. 1083-1091.
18. **Person, M.**, Toupin, D., and Eadington, P. J., 1995, One-dimensional models of groundwater flow, sediment thermal history, and petroleum generation within continental rift basins, *Basin Research*, v. 7, p. 81-96.
19. Wieck, J., **Person, M.**, and L. Strayer, 1995, A New Finite Element Model for Simulating Fault Block Motion and Hydrothermal Fluid Flow within Rifting Basins, *Water Resources Research*, v. 31, p. 3241-3258.
20. **Person, M.**, Raffensperger, J., Ge. S., and G. Garven, 1996, Basin-Scale Hydrogeological Modeling, *Reviews of Geophysics*, 34, 61-87.
21. Toupin, D., **Person, M.**, Eadington, P., Morin, P., and Warner, D., 1997, Petroleum Hydrogeology of the Cooper and Eromanga Basins, Australia, *American Association of Petroleum Geologists Bulletin*, v. 81, p. 577-603.
22. Baumgartner, L. P., Gerdes, M. L., **Person, M. A.**, and Roselle, G. T., 1997, Porosity and permeability of carbonate rocks during contact metamorphism, (in) *Fluid Flow and Transport in Rocks: Mechanisms and Effects*, Bjorn Jamtveit and Bruce Yardley (eds.), Chapman and Hall, London.
23. Goff, K., Lewis, **M.**, **Person, M.**, Konikow, L. F., 1998, Simulated effects of changes in irrigation practices on the quantity and quality of water in the Arkansas River Valley in Colorado, *Ground Water*, v. 36, p. 67-76.
24. Taylor, J. and **Person, M.**, 1998, Capture Zone Delineation on Island Aquifer Systems, *Ground Water*. 36, p. 722-730.
25. **Person, M.**, Taylor, J. and S. L. Dingman, 1998, Sharp-Interface Models of Salt Water Intrusion and Well Head Delineation on Nantucket Island, Massachusetts, *Ground Water*, v. 36, p. 731-742.
26. Gerdes, M., Baumgarnter, L. P., and **M. Person**, 1999, Convective flow through heterogeneous country rocks during contact metamorphism, *Journal of Geophysical Research*, v. 103, p. 23,983-24,003.

27. Mailloux, B., **Person, M.**, Strayer, P., Hudleston, P.J., Cather, S., Dunbar, N., 1999, Tectonic and Stratigraphic Controls on the Hydrothermal Evolution of the Rio Grande Rift, *Water Resources Research*, v. 35(9), p. 2641-2659.
28. Walvoord, **M., Pegram, P.**, Phillips, F., Person, M., and Keif, T., 1999, Hydrogeology of Cerro Negro Intrusion: Implications for the transport and preservation of deep subsurface bacteria, *Water Resources Research*, v 35(5), p. 1409-1424.
29. Bekele, Elise, **Person, Mark**, de Marsily, Ghislain, 1997, Petroleum migration pathways and chargeconcentration; a three-dimensional model; discussion, AAPG Bulletin, 83 (6), p. 1015-1019, illus. incl. sketch maps, 6 refs, 1999. For reference to original see Hindle, Andrew D., *AAPG Bull.*, Vol. 81, No. 9, p. 1451-1481.
30. Tseng, Hsin-Yi, **Person, Mark**, Onstott, T. C., 1998, Hydrogeologic constraint on the origin of deep subsurface microorganisms within a Triassic basin, *Water Resources Research*, 34 (5), p. 937-948.
31. Person, M., Goodwin, L.B., Rawlings, G., and S. Connell, 2000, The evolution of fault-zone permeability and groundwater flow patterns within the Albuquerque Basin of the Rio Grande Rift, NM, *Journal of Geochemical Exploration*, v. 69-70, p. 565-568.
32. Swenson, J.B. and **M. Person**, 2000, The role of basin-scale transgression and sediment compaction in stratigorm copper mineralization: implications from White Pine, Michigan, USA, *Journal of Geochemical Exploration*, v. 69-70, p. 239-342.
33. Lampe, C., **Person, M.**, Nöth, S. and W. Ricken, 2001. Episodic fluid flow within continental rift basins - some insights from field data and mathematical models, *Geofluids*, v. 1, p. 37-41.
34. Beleke, E., **Person, M. A.**, Rostron, B. J., and R. Barnes, 2002, Modeling secondary oil migration with core-scale data: Viking Formaion, Alberta Basin, *American Association of Petroleum Geologists Bulletin*, v. 86, no. 1, p. 55-74.
35. York, J. P., **Person, M.**, and Gutowski, W. J., York, J. P., Person, M., and Gutowski, W. J., 2002, Putting Aquifers into Atmospheric simulations models, an example from the Mill Creek watershed, Northeastern Kansas, *Advances in Water Resources*, v. 25(2), p. 221 - 238.
36. Gutowski, W.J., Vörösmarty, C.J., **Person, M.**, Ötles, Z., Fekete, B., York, J.A., 2002, Coupled Land-Atmosphere Simulation Program (CLASP): Calibration and validation, *J. Geophys. Res.*, v. 107, D16, p. 1-17.
37. Lampe, C. and **M. Person**, 2002, Advective cooling within sedimentary rift basins—application to the Upper Rhinegraben (Germany), *Marine and Petroleum Geology*, v. 19; 3, p. 361-375.
38. Filby, S. Locke, S. Person, M. Winter, T., Rosenberry, D. O. Nieber, J., Gutowski, W.J., and E. Ito, 2002, Mid-Holocene Hydrologic Model of the Shingobee Watershed, Minnesota, *Quaternary Research*, 58(3), p. 246-254.
39. **Person, M.**, Dugan, B., Swenson, J.B., Urbano, L., Sttot, C., Taylor, J., Willett, M., 2003, Pleistocene hydrogeology of the Atlantic continental shelf, New England, *GSA Bulletin*, v. 115. p. 1324-1343.

40. Bekele, E.B., Rostron, B.J. and **Person, M.A.**, 2003. Fluid pressure implications of erosional unloading, basin hydrodynamics and glaciation in the Alberta Basin, Western Canada. *Journal of Geochemical Exploration*, 78, pp.143-147.
41. Swenson, J., **Person, M.**, Woodruff, L., and Cannon, W., 2003, Hydrologic models of main-stage copper sulfide mineralization within the Allouez Basin of the Midcontinent Rift System, *Geofluids Journal*, v. 3, p. 1-22.
42. Urbano, L.D., Person, M., Kelts, K., and J. S. Hanor, 2004, Transient groundwater impacts on the development of paleo-climatic lake records in semi-arid environments, *Geofluids*, v. 4, 1-10.
43. Zhang Y., **M. Person**, C. Paola, C. W. Gable, X.-H. Wen, J. M. Davis (2005), Geostatistical analysis of an experimental stratigraphy, *Water Resources Research*, 41, W11416, doi:10.1029/2004WR003756.
44. Zhang Y., **M. Person**, E. Merino, M. 2005, Hydrologic and geochemical controls on soluble benzene migration in sedimentary basins, *Geofluids*, Volume 5, Issue 2, Page 83-105.
45. Zhang Y., **M. Person**, E. Merino, M. Szpakiewicz, 2005 Evaluation of soluble benzene migration in the Uinta Basin, *Geofluids*, Volume 5, Issue 2, Page 106-123.
46. Zhang Y., C. W. Gable, **M. Person** (2006), Equivalent hydraulic conductivity of an experimental stratigraphy: Implications for basin-scale flow simulations, *Water Resources Research*, 42, W05404, doi:10.1029/2005WR004720.
47. **Person, M.** Cohen, D., Sabin, A, Unruh, J. Gable, C., and G. Zyvoloski, 2006, Isotope Exchange and Transport in the Coso Geothermal System, [Geothermal Resources Council](#), GRC Annual Meeting 2006, Geothermal Resources-Securing Our Energy Future, Volume 1, GRC Transactions, Volume 30.
48. Bense V. F., **M. Person** (2006), Faults as conduit-barrier systems to fluid flow in siliciclastic sedimentary aquifers, *Water Resources Research*, 42, W05421, doi:10.1029/2005WR004480.
49. Cohen, D. **Person, M.**, Daannen, R Locke, S, Dahlstrom, D Zabielski, V, Winter, T.C. Rosenberry, D.O., Wright, H, Emi Ito *et al.*, 2006, Groundwater-supported evapotranspiration within glaciated watersheds under conditions of climate change, *Journal of Hydrology*, v. 320(3-4), p. 484-500.
50. Marksamer, Andee J., **M.A. Person**, F. Day-Lewis, J.W. Lane, D. Cohen, B. Dugan ,K. Henk, and M. Willett. Integrating Geophysical, Hydrochemical, and Hydrologic Data to Understand the Freshwater Resources on Nantucket Island, Massachusetts. In Hyndman, D.W., F. D. Day-Lewis, and K. Singha (eds.) *Data Integration in Subsurface Hydrology*, AGU Water Resources Monograph, 2007, DOI: 10.129/172GM12, 17 p.
51. **Person, M.** Roy, P., Wright, H., Ito, E, Winter, T, Rosenberry, D., Gutowski, W., Cohen, D., Morin, P., 2007, Hydrologic Response of the Crow Wing Watershed, Minnesota to Mid-Holocene Climate Change, *Geological Society of America Bulletin*, v.119(3-4), p.363-376.
52. **Person, M.** (Rapporteur) , L.P. Baumgartner, B. Bos, J. Connolly, J.-P. Gratier, F. Gueydan, S.A. Miller, C.L. Rosenberg, J. Urai, B.W.D. Yardley, (2007), Group 4 Report: Fluids, Geochemical Cycles, and Mass Transport in Fault Zones, Chp. 14, Mark Handy. Handy, M.R., G. Hirth, and

- N. Hovius, eds. 2007. Tectonic Faults: Agents of Change on a Dynamic Earth. Dahlem Workshop Report 95. Cambridge, MA: MIT Press 28 p.
53. **Person M.**, J. McIntosh, V. Bense, V. H. Remenda, 2007, Pleistocene hydrology of North America: The role of ice sheets in reorganizing groundwater flow systems, *Rev. Geophys.*, 45, RG3007, doi:10.1029/2006RG000206
 54. **Person, M.** Mulch, A. Teyssier, C. and Y. Gao , 2007, Isotope transport and exchange within metamorphic core complexes, *Am J Sci* 2007 307: 555-589.
 55. **Person, M.**, Banerjee, A., Hofstra, D., Sweetkind, D., and Y. Gao, 2008, Hydrologic Models of Modern and Fossil Geothermal Systems within the Great Basin: Implications for Carlin-Type Gold Mineralization, *Geosphere*, vol. 4, no. 5, pp.888-917, Oct 2008
 56. You, Y. and **M. Person**, 2008, Role of pore pressure generation in sediment transport within half-grabens Basin Research, v. 20(3), p. 419-429.
 57. Bense V. F., **M. A. Person**, K. Chaudhary, Y. You, N. Cremer, S. Simon (2008), Thermal anomalies indicate preferential flow along faults in unconsolidated sedimentary aquifers, *Geophys. Res. Lett.*, 35, L24406, doi:10.1029/2008GL036017
 58. Bense V. F., **M. A. Person** (2008), Transient hydrodynamics within intercratonic sedimentary basins during glacial cycles, *J. Geophys. Res.*, 113, F04005, doi:10.1029/2007JF000969.
 59. *Cohen, D., **Person M.** , Wang, P. Gable, C. Hutchinson, D., Marksamer, A. Dugan, B. Kooi, H. Groen, K., Lizarralde, D. and R. L. Evans, Origin and Extent of Fresh Paleowaters Beneath the Atlantic Continental Shelf, 2009, *Groundwater*, Volume 48 Issue 1, p. 143 – 158. ^sCorresponding author.
 60. **Person, M.** Banerjee, A., Rupp, J., Medina, C. Lichtner, P., Gable, C., Pawar, R. Celia, M., McIntosh, J., and V. Bense, 2009, Assessment of Basin-Scale Hydrologic Impacts of CO₂ Sequestration, Illinois Basin, *International Greenhouse Gas Journal*, doi:10.1016/j.ijggc.2010.04.004.
 61. Banerjee, A. **Person, M.**, Hofstra, A., Sweetkind, D., Cohen, D., Unruh, J., Zvoloski, G., Gable, C. W., Crossey L., and K. Karlestrom, 2011, Fault Controlled Helium Transport and Fluid-Rock Isotope Exchange In the Great Basin, USA, *Geology*, v. 39;195-198
 62. DeFoor, W. **Person, M.**, Larsen, H.C., Lizarralde, D. Cohen, D. and B. Dugan, 2011, Ice sheet–derived submarine groundwater discharge on Greenland’s continental shelf, *Water Resources Research*, doi:10.1029/2011WR010536
 63. Schegel, M., Zheng, Z., McIntosh, J, Ballentine, C., and **M. Person**, 2011, Constraining the timing of microbial methane generation in an organic-rich shale using noble gases, Illinois Basin, USA, *Chemical Geology* Volume 287, Issues 1-2, p. 27-40.
 64. McIntosh, J., Schlegel, J., **Person, M.** , 2011, Glacial impacts on hydrologic processes in sedimentary basins: evidence from natural tracer studies, *Geofluids*, DOI: 10.1111/j.1468-8123.2011.00344.x

65. **Person, M.**, McIntosh, J., Iverson, N., Neuzil, C.E. and Bense, V., 2012. Geologic isolation of nuclear waste at high latitudes: the role of ice sheets. *Geofluids*, 12(1), pp.1-6.
66. **Person, M.** Butler, D., Gable, C. W., Villamil, T., Waverek, D., and D. Schelling, 2012, Hydrodynamic stagnation zones: A new play concept for the Llanos Basin, Colombia, Association of Petroleum Geologists Bulletin, v. 96 no. 1 p. 23-41.
67. **Person M.**, Hofstra, A., Sweetkind, D, Stone, W., Cohen, D., Gable, C, Banerjee, A. 2012, Analytical and numerical models of hydrothermal fluid flow at fault intersections, *Geofluids*, v. 12, 312–326.
68. **Person, M.**, Marksamer, A. J., P. Sauer, K. Brown, D. Bish, L. Litch, B. Dugan, N. Krothe, and M. Willett, 2011, Use of a Vertical $\delta^{18}\text{O}$ Profile to Constrain Hydraulic Properties and Recharge Rates Across a Glacio-Lacustrine Unit, Nantucket Island, Massachusetts, USA, *Hydrogeology Journal*, DOI 10.1007/s10040-011-0795-1
69. **Person, M.** Bense, V., Cohen, D., Banerjee, A. 2012, Models of ice-sheet hydrogeologic interactions: a review, *Geofluids*, doi: 10.1111/j.1468-8123.2011.00360.x
70. Iverson, N. and **Person, M.**, 2012, Glacier-bed geomorphic processes and hydrologic conditions relevant to nuclear waste disposal. *Geofluids*, doi: 10.1111/j.1468-8123.2011.00355.x
71. Siegel, J. Dugan, B. **Person, M.**, DeFoor, W., Lizzaralde, D., Miller, N., 2012, Geophysical Evidence of a Late Pleistocene Glaciation and Paleo-Ice Stream on the Atlantic Continental Shelf Offshore Massachusetts, USA, *Marine and Petroleum Geology*, v. 303-306, p. 63-74.
72. Zhang, Y., **Person, M.**, Rupp, J., Ellet, K., Celia, M.A., Gable, C.W., Bowen, B., Evans, J., Bandilla, K., Mozley, P.S., Dewers, T., and Elliot, T., 2013, Hydrogeologic controls on induced seismicity in crystalline basement rocks due to fluid injection into basal reservoirs: *Groundwater*, v. 51, Issue 4, p. 525–538.
73. Post, V. Groen, J., Kooi, H. **Person, M.**, Ge, S. 2013, Review: Offshore fresh groundwater reserves – A global phenomenon, *Nature*, v. 504, p. 71-84, doi:10.1038/nature12858.
74. Howald T, **Person M**, Campbell A, Lueth V, Hofstra A, Sweetkind D, Gable CW, Banerjee A, Luijendijk E, Crossey L, Karlstrom K, Kelley S, and Phillips F, 2015. Evidence for Long-Time Scale ($> 10^3$ years) Changes in Hydrothermal Activity Induced by Seismic Events, *Geofluids*, 15,(1-2) 252–268
75. Pepin J, **Person M**, Phillips F, Kelley S, Timmons S, Witcher J, and Gable C, 2014, Deep Fluid Circulation within Crystalline Basement Rocks and the Role of Hydrologic Windows in the Formation of the Truth or Consequences, New Mexico Low-Temperature Geothermal System, *Geofluids*, doi: 10.1111/gfl.12111.
76. Siegel J, **Person M**, Dugan B, Cohen D, Lizarralde D, Gable C, 2014, [Influence of late Pleistocene glaciations on the hydrogeology of the continental shelf offshore Massachusetts, USA](#) *Geochemistry, Geophysics, Geosystems*, doi: 10.1002/2014GC005569, p. 1-20.

77. **Person M**, 2014, Book Review: *Frontiers in Geofluids*, by B. Yardley, C. Manning and G. Garven. Wiley-Blackwell, Chichester, 2011. No. of pages: viii +318 pp. Price: UK£55.00. ISBN 978-1-4443-3330-5 (hardback), *Geological Journal*, 49: 534–536 (2014).
78. Jordan, A, Stauffer, P, Zyvoloski, G, **Person, M**. MacCarthy J, and Anderson, D, 2014, Uncertainty in Prediction of Radionuclide Gas Migration from Underground Nuclear Explosions, *Vadose Zone J.* doi:10.2136/vzj2014.06.0070.
79. **Person M**, Kelley S, Kelley R, Karra S, Harp D, Witcher J, Bielicki J, Sutulas G, Middleton R, Pepin J, 2015, Hydrogeologic Windows: Detection of Blind and Traditional Geothermal Play Fairways in Southwestern New Mexico Using Conservative Element Concentrations and Advective-Diffusive Solute Transport, *Geothermal Resources Council Transactions*, v. 39, p. 751-759.
80. Zhang, Y., Edel, S.S., Pepin, J., Person, M., Broadhead, R., Ortiz, J.P., Bilek, S.L., Mozley, P. and Evans, J.P., 2016. Exploring the potential linkages between oil-field brine reinjection, crystalline basement permeability, and triggered seismicity for the Dagger Draw Oil field, southeastern New Mexico, USA, using hydrologic modeling. *Geofluids*, 16(5), pp.971-987.
81. **Person M**, Wilson JW, Morrow N, Post V, 2016, Continental Shelf Freshwater Water Resources and Improved Oil Recovery by Low-Salinity Water Flooding, *American Association of Petroleum Geologists Bulletin, AAPG Bulletin*, 101(1), pp.1-18.
82. Kelley, S, **Person M**, Kelley, and Pepin J, 2016, Flow-temperature geothermal resources in Acoma Basin and Lucero Uplift, Eastern Cibola and Western Valencina Counties, NM, *New Mexico Geological Society Guidebook, 67th Field Conference, Geology of the Belen Area*, v. 67, p. 263-274.
83. **Person, M.**, Kelley, S., Kelley, R., Karra, S., Harp, D., Witcher, J., Bielicki, J., Sutula, G., Middleton, R. and Pepin, J.D., 2015. Hydrogeologic Windows: Detection of Blind and Traditional Geothermal Play Fairways in Southwestern New Mexico Using Conservative Element Concentrations and Advective-Diffusive Solute Transport. *Geothermal Resources Council Transactions*, pp.751-759.
84. Neuzil, C. E. and **M. Person** (2017), Reexamining ultrafiltration and solute transport in groundwater, *WRR*, 53, 4922–4941.
85. Zhang, Y., **Person, M.**, Voller, V., Cohen, D., McIntosh, J. and Grapenthin, R., 2018. Hydromechanical impacts of Pleistocene glaciations on pore fluid pressure evolution, rock failure, and brine migration within sedimentary basins and the crystalline basement. *Water Resources Research*, 54(10), pp.7577-7602.
86. Ortiz, J.P., **Person, M.A.**, Mozley, P.S., Evans, J.P. and Bilek, S.L., 2019. The Role of Fault-Zone Architectural Elements on Pore Pressure Propagation and Induced Seismicity. *Groundwater*, 57(3), pp.465-478.
87. Louis, S., Luijendijk, E., Dunkl, I. and **Person, M.**, 2019. Episodic fluid flow in an active fault. *Geology*. 47 (10): 938-942.
88. Grapenthin, R., Kelley, S., Person, M. and Folsom, M., 2019. Decadal-scale aquifer dynamics and structural complexities at a municipal wellfield revealed by 25 years of InSAR and recent groundwater temperature observations. *Water Resources Research*, 55(12), pp.10636-10656.

89. Micallef, A., Person, M., Haroon, A., Weymer, B. A., Jegen, M., Schwalenberg, K., et al. (2020). 3D characterisation and quantification of an offshore freshened groundwater system in the Canterbury Bight. *Nature Communications*, *11*, 1372.
90. Manzoor, Q., Martin-Nagle, R., Oster, J., Lamizana Diallo, B., Voutchkov, N., KooOshimma S., Edeltraud G., DeSouza, M., Person, M., et al., 2020, UN-Water, 2020: UN-Water Analytical Brief on Unconventional Water Resources. Geneva, Switzerland.
91. Petrie, Elizabeth S., Kelly K. Bradbury, Laura Cuccio, Kayla Smith, James P. Evans, John P. Ortiz, Kellie Kerner, Mark Person, and Peter Mozley. "Geologic characterization of nonconformities using outcrop and whole-rock core analogues: hydrologic implications for injection-induced seismicity." *Solid Earth Discussions* (2020): 1-25.
92. Stroujkova, A., Gorman, E., Avendano, S.T., Horne, M., Person, M.A., Hubbard, P., Salerno, J., Carrigan, C.R., Harp, D.R. and Stauffer, P.H., 2020. Using SF6 and Xe to monitor gas migration through explosion-generated fracture networks. *Journal of Geophysical Research: Solid Earth*, *125*(5), p.e2019JB018992.
93. Micallef, A., **Person, M.**, Berndt, C., Bertoni, C., Cohen, D., Dugan, B., Evans, R., Haroon, A., Hensen, C., Jegen, M. and Key, K., 2021. Offshore freshened groundwater in continental margins. *Reviews of Geophysics*, *59*(1), p.e2020RG000706.
94. **Person, M.** and Sazeed, N., 2022. Continental Brackish Water Resources (Chapter 6), in: *Unconventional Water Resources*, Mazoor Qadir, Smakhti, V., Koo-Oshima, S. and Guenther, E. (editors), Springer, p. 111-129.
95. **Person, M.** and Micallef, A. 2021, Offshore Freshened Groundwater in Continental Shelf Environments, in *Unconventional Water Resources*, (Mazoor Qadir, Smakhti, V., Koo-Oshima, S. and Guenther, E. (editors), Springer, p. 97-109.
96. Noyes, C., Kim, J., **Person, M.**, Ma, L., Ferguson, G. and McIntosh, J.C., 2021. A geochemical and isotopic assessment of hydraulic connectivity of a stacked aquifer system in the Lisbon Valley, Utah (USA), and critical evaluation of environmental tracers. *Hydrogeology Journal*, pp.1-19.
97. Kim, J-H, Bailey, L. Noyes, C. Tyne, R.L., Ballentine, C.J., **Person, M.**, Ma, L. Barton, M. Barton, I. Reiners, P.W., Ferguson, G. McIntosh, J. 2022. Hydrogeochemical Evolution of Formation Waters Responsible for Sandstone Bleaching and Ore Mineralization in the Paradox Basin, *Geological Society of America Bulletin*, <https://doi.org/10.1130/B36078.1>
98. Kim, J.H., Ferguson, G., **Person, M.**, Jiang, W., Lu, Z.T., Ritterbusch, F., Yang, G.M., Tyne, R., Bailey, L., Ballentine, C. and Reiners, P., 2022. Krypton-81 Dating Constrains Timing of Deep Groundwater Flow Activation. *Geophysical Research Letters*, *49*(11), p.e2021GL097618.

99. Evanocheck, L. and Person M., 2022, Modeling, Hydrogeology and water resources of the Salt Basin, New Mexico and Texas, NM Bureau of Geology and Mineral Resources Open File Report 618, p. 83-133.
100. M. Person, J.C. McIntosh, J.-H. Kim, C. Noyes, L. Bailey, S. Lingrey, R. Krantz, D., Lucero, P.W. Reiners, and G. Ferguson, 2023, Hydrologic windows into the crystalline basement and their controls on groundwater flow patterns across the Paradox Basin, western USA, Geological Society of America Bulletin, doi:10.1130/B37063.1.
101. Micallef, A., Person, M., Gupta, S., Saadatkah, N., Camille*, A. and Gratacós, Ò., 2023. Can offshore meteoric groundwater generate mechanical instabilities in passive continental margins? *Journal of Geophysical Research: Earth Surface*, 128(3), p.e2022JF006954
102. Person, M. Stone, W.D., Horne*, M., Witcher, J., Kelley, S., Lucero, D.*, Gomes-Velez, J., Gonzalez-Deque, 2023, D. Analysis of Convective Temperature Overturns Near the East Rincon Hills Fault Zone using Semi-Analytical Models, Geothermal Research Council Transactions, V. 47, p. 2093-3117.

Prior Research Support (2022-1998)

| Year | Project Title | Granting Agency | Amount |
|-------------|---|--|---------------|
| 2024-2027 | Interpreting Pressure Anomalies in Clay Rock Formations | Swiss National Cooperative for the Disposal of Radioactive Waste (NAGRA) | \$244,269 |
| 2019-2022 | Collaborative Research: Exploring the linkages between Sea-Level Change, Sediment Transport and Geomorphology on Coastal Freshwater Water Sequestration | NSF-Frontiera Research in Earth Sciences | \$2,100,000 |
| 2018-2021 | Can Electromagnetic Surveys Image Deep Crystalline Basement Flow Systems in Extensional Terrains? | NSF-Hydrologic Sciences | \$267,805 |
| 2017-2020 | Evolution of Crustal Paleoflow Systems | Keck Foundation | \$210,544 |
| 2015 – 2017 | Hydrologic connection between basal aquifers and crystalline basement in fault zones: Implications for induced seismicity | USGS Hazards | \$157,548 |
| 2014-2016 | The Hydromechanical Wild Card: The Role of Ice Sheets in Crustal Stress Changes, Anomalous Pore Pressures Generation and Seismicity within the Midcontinent Region of North America | NSF-Hydrologic Sciences | \$174,650 |
| 2016-2020 | Topographically-driven meteoric groundwater – an important geomorphic agent’ (MARCAN) | European Union | \$38,031 |
| 2014-2015 | Assessment of Geothermal Resources of the Socorro and La Jencia Basins, New Mexico using High Resolution Hydrothermal Models | Department of Energy Geothermal Program Office | \$135,000 |

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| 2013-2018 | Energize New Mexico: Assessment of Geothermal Resources and Sustainability | NSF-EPSCOR | \$750,000 |
| 2013-2015 | The Hydromechanical Wild Card: The Role of Ice Sheets in Crustal Stress Changes, Anomalous Pore Pressures Generation and Seismicity within the Midcontinent Region of North America | National Science Foundation Hydrologic Sciences Program | \$175,000 |
| 2012-2013 | Geothermal Resource Assessment for the City of Truth or Consequences | State of NM | \$50,000 |
| 2010-2011 | Assessment of NM Geothermal Resources: Phase II Web Site Development | NM EMNRD | \$50,000 |
| 2009-2011 | Analytical-Numerical Sharp-Interface Model of CO ₂ Sequestration & Application to Illinois Basin | Department of Energy NETL | \$970,000 |
| 2009-2011 | Collaborative Research: Continental Smokers; valuating mantle-to-surface hydrologic connections, CO ₂ flux, geomicrobiology, and water quality in continental rifts | National Science Foundation Hydrologic Sciences Program | \$50,000 |
| 2008-2011 | Collaborative Research: Stratigraphic Controls on Freshwater Beneath the Continental Shelf | National Science Foundation Ocean Sciences Program | \$350,000 |
| 2009-2011 | A Geothermal District Heating System on the NM Tech Campus, (M. Person PI; co-PIs: Gary Axen, Andy Campbell, Nigel Blaney, Richard Chamberlain, Marshall Reiter, Tom Keift, Corey Leclerc, James Witcher, Carl Gable, Yvonne Manzano-Brown, and Pete Sanchez) | Department of Energy Geothermal Program Office | \$1,989,193 |
| 2008-2010 | Collaborative Research: Time-Dependent Hydrothermal Convection within the Great Basin Nevada, M. Person PI; Carl Gable, Albert Hofstra co-PIs. | National Science Foundation Hydrologic Sciences Program | \$284,274 |
| 2009-2011 | Analytical-Numerical Sharp-Interface Model of CO ₂ Sequestration & Application to Illinois Basin, (M. Person PI; co-PIs Michael Celia, John Rupp, Brenda Bowen) | Department of Energy National Energy Technology Laboratory | \$891,000 |
| 2010 | Geothermal Energy for New Mexico Tech: Assessment and Exploratory Drilling, DE-FG36-04GO14342, M. Person & #P. Kyle, PIs. | Department of Energy Geothermal Program Office | \$472,399 |
| 2009-2011 | Collaborative Research: Continental Smokers; evaluating mantle-to-surface hydrologic connections, CO ₂ flux, geomicrobiology, and water quality in continental rifts, Laura Crossey, PI, M. Person co-PI | National Science Foundation Hydrologic Sciences Program | \$50,000 |
| 2009-2010 | Ice-Sediment Hydrologic and Geomechanical Interactions; State of Science Review | Nuclear Waste Management Agency, Canada | \$250,000 |
| 2006-2008 | Mechanisms Producing Variation in Lake Salinity in Dune Environments: Nebraska, Sand Hills (Person, co-PI; Zoltnik, PI) | National Science Foundation | \$75,000 |
| 2006-2008 | Faults as conduit-barrier systems: Tracing fluid migration along faults in the Lower Rhine Embayment | National Science Foundation | \$350,000 |

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| 2006-2007 | Coso Hot Springs, Analysis of Hydrogology | Department of Navy | \$91,000 |
| 2002-2007 | Hydrothermal fluid flow and Ore Formation in the Great Basin, Nevada (PI) | USGS | \$135,000 |
| 2004-2007 | Collaborative Research: Pleistocene hydrology of the Atlantic continental shelf | National Science Foundation | \$261,649 |
| 2001-2003 | The role of fluids in the cooling of metamorphic core complexes (co-PI) | National Science Foundation | \$6,477 |
| 2002-2003 | Determination of Effective Hydrogeological Parameters using Jurassic Tank Experimental Stratigraphy | DOE-IGPP | \$75,000 |
| 2001-2002 | Computer modeling of regional groundwater flow and BTEX migration in sedimentary basins of the Colorado Plateau | Department of Energy | \$70,000 |
| 2001-2002 | Assessment of long-term variations in soil moisture and regional groundwater flow patterns across the Snake River Aquifer System | Department of Energy | \$95,000 |
| 1998-2001 | Chemical and Physical Consequences of Magma Injection in Submarine Hydrothermal Systems: Insights from Mathematical Modeling | National Science Foundation | \$191,000 |
| 1998-2001 | Regional Hydrologic Simulation Model to Study Aquifer-Atmosphere Interactions on Interannual–Decadal Time Scales | NASA | \$250,000 |
| 1998-2001 | Collaborative Research: Salinity of Groundwaters in Continental Sedimentary Basins as a Record of Quaternary Paleoclimatic Conditions (Person, PI; Hanor, Co-PI) | National Science Foundation | \$110,647 |
| 2000 | Three-Dimensional Modeling of Saltwater Upconing on Nantucket Island, MA | Wannacomet Water Company | \$53,000 |
| 1999-2001 | Mathematical modeling of BTEX migration within Sedimentary Basins in the Four Corners Region, USA | Department of Energy | \$88,000 |
| 1998 | Mathematical models of Petroleum Generation and Migration within the Midcontinent Rift, USA | Department of Energy | \$23,500 |
| 2000-2003 | The Role of Aquifers in Paleoclimatic Reconstructions of Glaciated Watersheds (Person, PI; Ito & Wright, Co-PIs) | National Science Foundation | \$284,935 |
| 1999-2000 | Three-Dimensional Physical and Numerical Modeling of Groundwater Flow and Solute Mass Transport Through Naturally Heterogeneous Porous Media at the Basin Scale | Department of Energy | \$21,000 |
| 1995-1997 | Hydrologic models of potassium metasomatism within the Rio Grande Rift, New Mexico | National Science Foundation | \$58,000 |
| 1996-1998 | Brine and oil migration within the Papuan Fold Belt: Insights from Mathematical Modeling & Fluid Inclusion Data | Petroleum Research Fund, ACS | \$50,000 |
| 1994-1996 | Geostatistical Models of Petroleum Migration within the Alberta Basin, Canada | Petroleum Research Fund, ACS | \$50,000 |

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|-----------|---|-----------------------------|-----------|
| 1993-1998 | A Graduate Training and Research Program in GEOFLUIDS | National Science Foundation | \$537,500 |
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Courses Taught at NM Tech

Hyd 547, Hydrologic Modeling. Introduced students to finite difference program (MODFLOW) and finite element modeling methods using MATLAB. Semester Project focused on determination of well head delineation zone for Nantucket Island, North Pasture well field. Purchased Modflow graphical User Interface GMS and Visual Modflow for this class (\$6000 start up funds).

Erth 440, Physical Hydrology, Fundamentals of hydrological flow and transport will be presented. Precipitation, runoff processes, and flood generation. Capillarity, unsaturated flow, and infiltration. Laws of flow in porous media, hydraulic storage, and flow to wells. Laboratory and field exercises that demonstrate and implement fundamental concepts of the hydrological cycle. Distance Education Students are exempt from lab participation.

Erth 441, Hydrogeology, Hydrogeologic controls on the occurrence, movement, and chemical and isotopic composition of groundwater. Hydrogeologic properties. Groundwater recharge and stream/aquifer interaction. Groundwater in different geological, climate, and physiographic regimes.

Hyd510, Quantitative Methods, Introduction to analytical and numerical methods used in the hydrologic sciences. Review test of algebra and calculus, including multivariate calculus. Solutions to ordinary differential equations and partial differential equations using finite difference and finite element methods.

Hyd516, Geofluids, Introduction to the role of Groundwater in Geologic Processes including groundwater flow, conductive/convective heat transfer, fluid-rock isotope exchange, sediment transport and overpressure formation. Applications the mechanics of thrust faulting, include diagenesis, ore forming processes, geothermal systems, petroleum migration, carbon sequestration etc. Along the way, we will explore how Excel, MATLAB can be used to obtain relatively quick solutions to heat and mass transport problems. Fluid-rock geochemical modeling approaches and thermodynamic databases will be introduced, and the use of GEMS and PHREEQC for interpreting the speciation and stability of minerals in aqueous fluids, including some basics in thermodynamics useful to understand fluid-rock interaction in hydrology and geochemistry. The class will include a combination of lectures and computer laboratories.

GRADUATE THESIS COMPLETED

Masters

1. Toupin, D., 1993, Hydrologic controls on petroleum generation within the Cooper and Eromanga Basins, Australia. (University of New Hampshire)
2. Wieck, J., 1993, On the role of normal fault motion in episodic groundwater flow within actively rifting basins. (University of New Hampshire)
3. Bekele, E., 1994, Three-dimensional models of petroleum migration within the Paris Basin, France (University of New Hampshire).
4. Edwin L. Batchelder, 1994, Transient hydrothermal circulation at the mid ocean ridge at 9°46' North on the East Pacific Rise (University of New Hampshire)
5. Stratton French, 1994, A quasi-three dimensional analysis of two-phase flow in phreatic aquifers (University of New Hampshire)

6. James Taylor, 1994, Effects of variable–density flow on wellhead delineation, University of New Hampshire (University of New Hampshire)
7. Lee Rhea, 1994, A geostatistical study of the effects of permeability Heterogeneities on separate–phase petroleum migration using discrete–interface approach (University of New Hampshire)
8. Karin Goff, 1996, Simulated effects of changes in irrigation practices on the quantity and quality of water in the Arkansas River Valley in Colorado (University of Minnesota)
9. Brian Mailloux, 1997, Tectonic controls on the hydrothermal evolution of the Rio Grande Rift (University of Minnesota)
10. Sheryl Filby, 2001, Holocene Hydrologic Model of the Shingobee Watershed, Minnesota (University of Minnesota)
11. Roy, Prasenjit, 2005, Hydrologic Response of the Crow Wing Watershed, Minnesota to Mid-Holocene Climate Change (Indiana University)
12. Andee Marksammer, 2007, Pleistocene hydrogeology of the Atlantic Continental Shelf, Nantucket Island, Massachusetts (Indiana University).
13. Yao You, 2008, Role of pore pressure generation in sediment transport within half-grabens (Indiana University)
14. Todd Engelder, 2008, Role of fault geometry and kinematics on the distribution of sediment facies within half grabens (Indiana University)
15. Kuldeep Chauderay, 2008, Late Quaternary Aquifer Salinization within the Murray Basin, Australia. (Indiana University)
16. Cathy Goetz, 2010, Drawdown patterns resulting from pumping wells in leaky perched aquifer systems. (New Mexico Tech)
17. Whitney DeFoor, 2011, Paleohydrologic models of freshwater emplacement on the Atlantic continental shelf off Martha’s Vineyard. (New Mexico Tech)
18. Yipeng Zhang, 2013, Hydrogeologic Controls on Induced Seismicity in Crystalline Basement Rocks Due to Fluid Injection into Basal Reservoirs (New Mexico Tech)
19. Trevor Howald, 2013, Evidence for Long-Time Scale ($> 10^3$ years) Changes in Hydrothermal Activity Induced by Seismic Events (New Mexico Tech)
20. David Butler, 2014, Effects of meso-scale deformation features at the reservoir-cap rock interface: Implications for carbon sequestration, 2014.
21. Jeff Pepin, 2014, Sustainability Assessment of the Truth or Consequences, NM Geothermal, Resource. (New Mexico Tech)
22. John Ortiz, 2017, The role of fault-zone architectural elements and basal altered zones on pore pressure propagation and induced seismicity. (New Mexico Tech)
23. Matt Folsom, 2017, Deep resistivity imaging of the central Rio Grande Rift using 3D Inversion Models of Magnetotelluirc Data with Implications for Hydrologic and Geothermal Processes (New Mexico Tech)
24. Sofia Avendano, 2019, Gas migration experiments and hydrogeologic effects of explosions in a fractured phreatic aquifer. (New Mexico Tech)
25. Mellisa Horne, 2019, Assessing the Rincon Geothermal System using Transient Electromagnetic Surveys and Hydrothermal Modeling
26. Elizabeth Evenocheck, 2021, Assessment of safe aquifer yield within the Salt Basin in New Mexico and Texas.

MSc Women: 7/24; Minorities: 2/24; International: 2/24 Ph.D.

1. Bekele, E., 1999, The role of aquifer heterogeneties and pore pressures in long range oil migration within the Alberta Basin (University of Minnesota). Current Position: Hydrologist CSIRO

2. York, J., 2000, Atmosphere-aquifer interactions; Insights from coupled mathematical modeling (University of Minnesota).
3. John Swenson, 2001, Groundwater flow and sediment transport in evolving sedimentary basins (University of Minnesota). Current Position: Professor, University of Minnesota-Duluth
4. Lensyl Urbano, 2001, Hydrogeologic controls on limnological records of climate change within semi-arid basins (University of Minnesota).
5. Zhang, Ye, 2005, Effective Hydrogeological Parameters using Jurassic Tank Experimental Stratigraphy (Indiana University) Current Position: Professor, University of Wyoming
6. Amlan Banerjee, Hydrologic models of Carlin-Type Gold Deposits, Nevada (Indiana University). Professor Indian Statistical Institute, Calcutta
7. Amy Jordan, 2015, Flow and Transport Models for Nuclear Test-Ban Treaty Monitoring and Nuclear Waste Disposal Applications. (New Mexico Tech) Current Position: Consultant, Neptune LLC.
8. Jeff Pepin, New approaches and insights to geothermal resource exploration and characterization, 2018. (New Mexico Tech) Current Position: US Geological Survey.
9. Yipeng Zhang, 2019, Impact of Continental Glaciations on Pore Pressure Evolution, Rock Failure, and Brine Migration in Sedimentary Basins and Crystalline Basement. (New Mexico Tech) Current Position: Assistant Professor, Oklahoma State University

Postdoctoral Fellows

1. Yongli Gao, Hydrothermal fluid flow and fluid Rock Isotope Exchange within the Shuswap Metamorphic Core Complex (Indiana University): Current Position: Professor, Univ. Texas El Paso.
2. Victor Bense, Hydrogeology of Faults in Poorly Consolidated Sediments (Indiana University) Current Position: Professor, Wageningen University
3. Amlan Banerjee, Hydrogeology of Great Basin Geothermal Systems, (NM Tech) Current Position: Visiting Professor Indian Statistical Institute, Calcutta

GRADUATE STUDENTS CURRENTLY ADVISING

Current Doctoral Students

1. Dolan Lucero (Ph.D)
2. Max Briggs (MSc)
3. Nafis Sazeed (Ph.D)
4. Mohamad Gad (Ph.D)