

MARK PERSON

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EDUCATION

B.A., Geology	1980	Franklin and Marshall College
M.S., Hydrology	1983	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

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. NM Tech Distinguished Research Award, 2016
2. Editor, Geofluids (2011-2016)
3. Herbertte Foundation Fellow, University of Lausanne, Switzerland. 2005.
4. Fellow, Geological Society of America, 2003
5. 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., Teyssier, 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. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. **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.
47. 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.
48. 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.
49. 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.
50. **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.
51. **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.

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55. 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.
56. 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
57. 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.
58. *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. [§]Corresponding author.
59. **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.
60. Banerjee, A. **Person, M.**, Hofstra, A., Sweetkind, D., Cohen, D., Unruh, J., Zyvoloski, 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
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62. 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.
63. 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
64. **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.
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of Petroleum Geologists Bulletin, v. 96 no. 1 p. 23-41.

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69. Iverson, N. and **Person, M.**, 2012, Glacier-bed geomorphic processes and hydrologic conditions relevant to nuclear waste disposal. *Geofluids*, in press (expected publication date: February, 2012), doi: 10.1111/j.1468-8123.2011.00355.x
70. 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.
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76. **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).

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78. **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.
79. Y. Zhang, S. Edel, J. Pepin, M. Person, et al., “Exploring the potential linkages between oil-field brine reinjection, crystalline basement permeability, and triggered seismicity for the Dagger Draw Oil field, doi: 10.1111/gfl.12199
80. **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.
81. Kelley, S, **Person M,** Kelley, and Pepin J. 2016, Flow-temperature geothermal resources in Acoma Basin and Lucero Uplift, Eastern Cibola and Western Valcenica Counties, NM, New Mexico Geological Society Guidebook, 67th Field Conference, Geology of the Belen Area, v. 67, p. 263-274.
82. **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.

Research Support (2015-1998)

Year	Project Title	Granting Agency	Amount
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 Science	\$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
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
Year	Project Title	Granting Agency	Amount
2006-2008	Faults as conduit-barrier systems: Tracing fluid migration along faults in the Lower Rhine Embayment	National Science Foundation	\$350,000
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
Year	Project Title	Granting Agency	Amount
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
1993-1998	A Graduate Training and Research Program in GEOFLUIDS	National Science Foundation	\$537,500

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.

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.
16. Cathy Goetz, 2010, Drawdown patterns resulting from pumping wells in leaky perched aquifer systems
17. Whitney DeFoor, 2011, Paleohydrologic models of freshwater emplacement on the Atlantic continental shelf off Martha's Vineyard
18. Yipeng Zhang, 2013, Hydrogeologic Controls on Induced Seismicity in Crystalline Basement Rocks Due to Fluid Injection into Basal Reservoirs
19. Trevor Howald, 2013, Evidence for Long-Time Scale ($> 10^3$ years) Changes in Hydrothermal Activity Induced by Seismic Events
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

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, Hydrgeologic 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). Current Position, Visiting Professor Indian Statistical Institute, Calcutta
7. Amy Jordan, 2015, Flow and Transport Models for Nuclear Test-Ban Treaty Monitoring and Nuclear Waste Disposal Applications

Postdoctoral Fellows

1. Yongli Gao, Hydrothermal fluid flow and fluid Rock Isotope Exchange within the Shuswap Metamorphic Core Complex (Indiana University): Current Position: Professor, East Tennessee State University.
2. Victor Bense, Hydrogeology of Faults in Poorly Consolidated Sediments (Indiana University) Current Position: Professor, University of East Anglia, UK
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. Jeff Pepin
2. Yipeng Zhang

Current Masters of Science Students

1. John Ortiz
2. Matt Folsom

Invited Colloquium Speaker

2017

Portland State University
Oregon State University

2016

Colorado School of Mines

2014

University of Massachusetts, Amherst

2009

University of Arizona
National Academy of Committee on Hydrologic Sciences

2005

Boston University
University of Lausanne

2003

Iowa State University
Indiana University Purdue University Indianapolis

2002

Free University of Amsterdam
University of Kentucky
Ohio State University

2001

University of Michigan

2000

University of Alberta
University of Indiana

1999

University of Massachusetts
Western Michigan
Laval University

1998

University of Wisconsin*
Argon National Labs*
University of Nebraska*

Michigan State University*

1997

Stanford University*

University of California-Santa Cruz*

Duke University*

Princeton University*

Sandia National Labs*

University of California-Davis*

University of Nevada-Reno*

University of Utah*

University of Arizona*

University of New Mexico*

University of Texas-Austin*

Baylor University*

Rice University*

Louisiana State University*

University of Alabama*

RPI*

New Mexico Tech*

1995

New Mexico Tech

University of Wyoming

University of Colorado

1994

Dartmouth University

University of Virginia