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Short Biography:

Education

Ph.D., Geological Engineering (hydrology), 2000, South Dakota School of Mines and Technology (SDSMT)

M.S., Geological Engineering (hydrology), 1995, SDSMT

B.S., Geological Engineering, 1993, SDSMT

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Publications

Long, A.J., and Mahler, B.J., 2013. Prediction, time variance, and classification of hydraulic response to recharge in two karst aquifers. *Hydrology and Earth System Sciences*, v. 17, p. 281-94, DOI: 10.5194/hess-17-281-2013 [[Link](#)]

Valder, J.F., Long, A.J., Davis, A.D., Kenner, S.J., 2012. Multivariate statistical approach to estimate mixing proportions for unknown end members, *Journal of Hydrology*, 460-461, p. 65-76, DOI: 10.1016/j.jhydrol.2012.06.037 [[Link](#)]

Long, A.J. and Valder, J.F., 2011. Multivariate analyses with end-member mixing to characterize groundwater flow: Wind Cave and associated aquifers. *Journal of Hydrology*, v. 409, no. 1-2, p. 315-327, DOI:10.1016/j.jhydrol.2011.08.028. [[Link](#)]

Long, A.J., 2009. Hydrograph separation for karst watersheds using a two-domain rainfall–discharge model. *Journal of Hydrology*, v. 364, no. 3-4, p. 249–256 [[Link](#)]

Long, A.J., and Gilcrease, P.C., 2009, A one-dimensional heat-transport model for

conduit flow in karst aquifers: *Journal of Hydrology*, v. 378, no. 3-4, p. 230-239. [Link]

Long, A.J., and Putnam, L.D., 2009, Age-distribution estimation for karst groundwater: Issues of parameterization and complexity in inverse modeling by convolution: *Journal of Hydrology*, v. 376, no. 3-4, p. 579-588. [Link]

Long, A.J., Sawyer, J.F., and Putnam, L.D., 2008. Environmental tracers as indicators of karst conduits in ground water, South Dakota, USA. *Hydrogeology Journal*, v. 16, no. 2, p 263-280 [Link]

Long, A.J. and Putnam. L.D., 2006. Translating CFC-based piston ages into probability density functions of ground-water age in karst. *J. Hydrol.* v. 330, no. 3-4, p. 735-747 [Link]

Long, A.J. and Putnam. L.D., 2004. Linear model describing three components of flow in karst aquifers using ^{18}O data. *Journal of Hydrology*, v. 296, p. 254-270. [Link]

Davis, A.D., Long, A.J., Wireman, M., 2002, KARSTIC: a sensitivity method for carbonate aquifers in karst terrain: *Environmental Geology* v. 42, no. 1, p. 65-72. [Link]

Long, A.J. and Derickson, R.G., 1999. Linear systems analysis in a karst aquifer. *Journal of Hydrology*, v. 219, p. 206-217 [Link]

Other Publications

Koth, K.R., and Long, A.J., 2012, Microgravity methods for characterization of groundwater-storage changes and aquifer properties in the karstic Madison aquifer in the Black Hills of South Dakota, 2009–12: U.S. Geological Survey Scientific Investigations Report 2012–5158, 22 p.

Long, A.J., Ohms, M.J., McKaskey, J.D.R.G, 2012, Groundwater flow, quality (2007–10), and mixing in the Wind Cave National Park area, South Dakota: U.S. Geological Survey Scientific Investigations Report 2011–5235, 50 p.

Long, A.J., and Putnam, L.D., 2010, Simulated groundwater flow in the Ogallala and Arikaree aquifers, Rosebud Indian Reservation area, South Dakota—Revisions with data through water year 2008 and simulations of potential future scenarios: U.S. Geological Survey Scientific Investigations Report 2010–5105, 64 p.

Putnam, L.D., and Long, A.J., 2009, Numerical groundwater-flow model of the Minnelusa and Madison hydrogeologic units in the Rapid City area, South Dakota: U.S Geological Survey Scientific Investigations Report 2009–5205, 81 p.

Banner, J.L., Musgrove, M., Rasmussen, J., Partin, J., Long, A., Katz, B., Mahler, B., Edwards, L., Cobb, K., James, E., Harmon, R.S., Herman, E., Wicks, C.M., 2008. Geochemistry and climate change in Martin, J.B. and White, W.B., eds., *Frontiers of karst research*. Karst Waters Institute Special Publication 13. Proceedings and recommendations of the workshop held May 3 through 5, 2007 in San Antonio, Texas, USA.

Putnam, L.D. and Long, A.J., 2007a. Analysis of ground-water flow in the Madison Aquifer using fluorescent dyes injected in Spring Creek and Rapid Creek near Rapid City, South Dakota, 2003-04: U.S. Geological Survey SIR 2007-5137, 27 p.

Putnam, L.D. and Long, A.J., 2007b. Characterization of ground-water flow and water quality for the Madison and Minnelusa aquifers in Northern Lawrence County, South Dakota: U.S. Geological Survey SIR 2007-5001, 61 p.

Miller, L.D. and Long, A.J., 2006. Statistical analyses of hydrologic system components and simulations of Edwards Aquifer water-level response to rainfall using transfer-function models, San Antonio, Texas: U.S. Geological Survey SIR 2006-5131, 20 p.

Epstein, J.B, Agenbroad, L., Fahrenbach, M., Horrocks, R.D., Long, A.J., Putnam, L.D., Sawyer, J.F., and Thompson, K.M., 2005. Field Trip Guide 1 Karst Features of the Southern Black Hills, South Dakota, USGS Karst Interest Group Workshop, 12 Sep. 2005.

Epstein, J.B., Davis, A.D., Long, A.J., Putnam, L.D., and Sawyer, J.F., 2005. Field Trip Guide 2 Karst Features of the Northern Black Hills, South Dakota and Wyoming, USGS Karst Interest Group workshop, 15 Sep. 2005

Long, A.J., Putnam, L.D., and Carter, J.M., 2003, Simulated ground-water flow in the Ogallala and Arikaree aquifers, Rosebud Indian Reservation area, South Dakota: U.S. Geological Survey Water-Resources Investigations Report 03-4043, 69 p.

Long, A.J., and Putnam, L.D., 2002a, Flow-system analysis of the Madison and Minnelusa aquifers in the Rapid City area, South Dakota - Conceptual model: U.S. Geological Survey Water-Resources Investigations Report 02-4185, 100 p., 3 pl.

Long, A.J. and Putnam, L.D., 2002b. Evaluating travel times and transient mixing in a karst aquifer using time-series analysis of stable isotope data in Kuniandy, E.L., (ed.) U.S. Geological Survey karst interest group proceedings, Shepherdstown, West Virginia, August 20-22, 2002: U.S. Geological Survey Water-Resources Investigations Report 02-4174, p. 66-73

Long, A.J., 2000. Modeling techniques for karst aquifers: anisotropy, dual porosity, and linear systems analysis. South Dakota School of Mines and Technology, Ph.D. Dissertation, 59 p, insert.

Long, A.J. and Putnam, L.D., 1999. Conceptual model of the Madison and Minnelusa aquifers near Rapid City, South Dakota in Stroble, M.L. et al., eds., Proceedings of the 1999 conference on the hydrology of the Black Hills, South Dakota School of Mines and Technology Bulletin no. 20, p. 98-104

Davis, A.D. and Long, A.J., 1998. Numerical simulation of ground-water flow at the proposed low-level radioactive waste disposal facility in Boyd County, Nebraska. Final technical report prepared for the Boyd County Low Level Waste Monitoring Committee, Butte, Nebraska, 29 p.

Long, A.J., 1995. Finite-difference modeling of anisotropic flow conditions in the Madison aquifer near Rapid City, South Dakota: South Dakota School of Mines and Technology, M.S. Thesis, 65 p.

Davis, A.D., Long, A.J., Nazir, M., Xiaodan, T., 1994. Ground-water vulnerability in the Rapid Creek basin above Rapid City, South Dakota: Final Technical Report.

U.S. Environmental Protection Agency. 78 p.