

SHAW-Related Publications

- Alkhaier, F., Z. Su, and G.N. Flerchinger. 2012. Shallow groundwater effect on land surface temperature and surface energy balance under bare soil conditions: modeling and description. *Hydrologic and Earth System Sciences* 16:1817-1831, doi:10.5194/hess-16-1817-2012.
- Al-Mulla, Y.A., J.Q. Wu, P. Singh, M. Flury, W.F. Schillinger, D.R. Huggins, C.O. Stockle. 2009. Soil water and temperature in chemical versus reduced-tillage fallow in a mediterranean climate. *Applied Engineering in Agriculture* 25(1):45-54.
- Baker, J.M., G.N. Flerchinger, and E.J.A. Spaans. 2000. Sensible Heat Exchange During Snowmelt. Chapter 12 In: S.A. Grant and I.K. Iskandar (eds.), *Contaminant Hydrology: Cold Regions Modeling*. Lewis Publishers, Boca Raton, Florida. 246 p.
- Bullied, W.J., R.C. Van Acker, and P.R. Bullock. 2012. Review: Microsite characteristics influencing weed seedling recruitment and implications for recruitment modeling. *Canadian Journal of Plant Science*. 92: 627-650 doi:10.4141/CJPS2011-281
- Bullied, W.H., G.N. Flerchinger, P.R. Bullock, and R.C. Van Acker. 2014. Process-Based Modeling of Temperature and Water Profiles in the Seedling Recruitment Zone: Part I. Model Validation. *Agricultural & Forest Meteorology* 188:89–103. doi:10.1016/j.agrformet.2013.11.012
- Bullied, W.H., P.R. Bullock, R.C. Van Acker, and G.N. Flerchinger. 2014. Process-Based Modeling of Temperature and Water Profiles in the Seedling Recruitment Zone: Part II. Seedling Emergence Timing. *Agricultural and Forest Meteorology* 188:104–120. doi:10.1016/j.agrformet.2013.10.007.
- Cameron, M.D., A.T. DeGaetano, and D.S. Wilks. 1998. Accounting for Varying Soil Moisture in Soil-Freezing-Depth Model. In: Proceedings of the 78th AMS Conference, American Meteorological Society.
- Campbell, J.L., S.V. Ollinger, G.N. Flerchinger, H. Wicklein, K. Hayhoe, and A.S. Bailey. 2010. Past and projected changes in soil frost at the Hubbard Brook Experimental Forest, New Hampshire, USA. *Hydrological Processes* 24(17):2465-2480.
- Cey, B. D. 2009. On the accuracy of noble gas recharge temperatures as a paleoclimate proxy. *J. Geophys. Res.*, 114, D04107, doi:10.1029/2008JD010438.
- Cheng, X., M.Huang, M.Shao. 2007. Simulation of soil moisture dynamics in croplands using SHAW model in the semi-arid region of the Loess Plateau. *Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering* 23(11):1-7. (Chinese article with English abstract)

- Cheng, Z., F. Wang, J. Sun, L. Ding, Y. Wang, and H. Wang. 2024. Effect of seasonal freeze–thaw process on spatial and temporal distribution of soil water and its infiltration to recharge groundwater. *Hydrological Processes* 2024;38:e15110. <https://doi.org/10.1002/hyp.15110>
- Corrao, M.V. T.E. Link, R. Heinse, and J.U.H. Eitel. 2017. Modeling of terracette-hillslope soil moisture as a function of aspect, slope and vegetation in a semi-arid environment. *Earth Surface Processes and Landforms* DOI: 10.1002/esp.4114
- DeGaetano, A.T., M.D. Cameron, and D.S. Wilks. 2001. Physical Simulation of Maximum Seasonal Soil Freezing Depth in the United States Using Routine Weather Observations. *J. Appl. Meteor.*, 40:546-555.
- Dixon, J. 1999. An Evaluation of Unsaturated Flow Models in an Arid Climate. Master’s Thesis, Department of Civil and Environmental Engineering, University of Nevada – Las Vegas. 98 pp.
- Duffin, E.K. 1999. Evaluating snowmelt runoff, infiltration, and erosion in a sagebrush-steppe ecosystem. Master’s thesis, Watershed Science Program, Utah State University, Logan, UT. 159 pp.
- Ekeleme, F., F. Forcella, D.W. Archer, D. Chikoye, and I.O. Akobundu. 2004. Simulation of shoot emergence pattern for cogongrass (*Imperata cylindrica*) in the humid tropics. *Weed Sci.* 52(6):961-967.
- Ekeleme, F., F. Forcella, D. Archer, I.O. Akobundu, and D. Chikoye. 2005. Seedling emergence model for tropic ageratum (*Ageratum conyzoides*). *Weed Sci.* 53(1):55-61.
- Fallow, D.J., G.W. Parkin, C. Wagner-Riddle and D.M. Brown. 1999. Estimated Annual Water Surplus for Four Regions in Ontario. University of Guelph, Land Resource Science Tech. Memo No. 99-1. 38 pp.
- Fallow, D.J., D.M. Brown, J.D. Lauzon, and G.W. Parkin. 2007. Risk assessment of unsuitable winter conditions for manure and nutrient application across Ontario *J. Environ. Qual.* 36 (1):31-43
- Flerchinger, G.N. and K.E. Saxton. 1988. Modeling tillage and residue effects on the hydrology of agricultural croplands. p 176-185. In: *Modeling Agricultural, Forest, and Rangeland Hydrology, Proceeding of the International Symposium*. ASAE Publication 07-88. American Society of Agricultural Engineers, St. Joseph, MI.
- Flerchinger, G.N. and C.L. Hanson. 1989. Modeling soil freezing and thawing on a rangeland watershed. *Trans. Amer. Soc. of Agric. Engr.*, 32(5):1551-1554.
- Flerchinger, G.N. and K.E. Saxton. 1989. Simultaneous heat and water model of a freezing snow-residue-soil system I. Theory and development. *Trans. Amer. Soc. of Agric. Engr.*,

- 32(2):565-571.
- Flerchinger, G.N. and K.E. Saxton. 1989. Simultaneous heat and water model of a freezing snow-residue-soil system II. Field verification. *Trans. Amer. Soc. of Agric. Engr.*, 32(2):573-578.
- Flerchinger, G.N., R.F. Cullum, C.L. Hanson and K.E. Saxton. 1990. Soil freezing and thawing simulation with the SHAW model. pp. 77-86. In: K.R. Cooley (ed.). *Frozen Soil Impacts on Agricultural, Range, and Forest Lands, Proceedings of the International Symposium*. CRREL Special Report 90-1. U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH. 318p.
- Flerchinger, G.N. 1991. Sensitivity of soil freezing simulated by the SHAW Model. *Trans. Amer. Soc. of Agric. Engr.*, 34(6):2381-2389.
- Flerchinger, G.N. and F.B. Pierson. 1991. Modeling plant canopy effects on variability of soil temperature and water. *Ag. and Forest Meteor.*, 56:227-246.
- Flerchinger, G.N., K.R. Cooley, and Y. Deng. 1994. Impacts of spatially and temporally varying snowmelt on subsurface flow in a mountainous watershed: 1. Snowmelt simulation. *Hydrologic Sci. J.*, 39(5):507-520.
- Flerchinger, G.N., J.M. Baker and E.J.A. Spaans. 1996. A test of the radiative energy balance of the SHAW model for snowcover. *Hydrol. Proc.*, 10(10):1359-1367.
- Flerchinger, G.N., C.L. Hanson, W.P. Kustas and M.A. Weltz. 1996. Modeling Evapotranspiration on Semi-Arid Rangelands. On: compact disk, C.T. Bathala (ed.), North American Water and Environment Congress. June 22-28, 1996, Anaheim, CA. ASCE, New York, New York.
- Flerchinger, G.N., C.L. Hanson and J.R. Wight. 1996. Modeling evapotranspiration and surface energy budgets across a watershed. *Water Resour. Res.*, 32(8):2539-2548.
- Flerchinger, G.N., Y. Deng and K. Gebhardt. 1997. Integrated modeling of disulfoton transport at an abandoned landfill site. *Appl. Engr. in Agric.*, 13(2):217-225.
- Flerchinger, G.N. and F.B. Pierson. 1997. Modeling plant canopy effects on variability of soil temperature and water: Model calibration and validation. *J. Arid Environ.*, 35:641-653.
- Flerchinger, G.N. and M.S. Seyfried. 1997. Modeling Soil Freezing and Thawing and Frozen Soil Runoff with the SHAW Model. pp. 537-543 In: I.K. Iskandar, E.A. Wright, J.K. Radke, B.S. Sharratt, P.H. Groenevelt, and L.D. Hinzman (eds.), *Proceedings of the International Symposium on Physics, Chemistry, and Ecology of Seasonally Frozen Soils*, Fairbanks, AK, June 10-12, 1997. CRREL Special Report 97-10. U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH.
- Flerchinger, G.N., W.P. Kustas and M.A. Weltz. 1998. Simulating Surface Energy Fluxes and

Radiometric Surface Temperatures for Two Arid Vegetation Communities using the SHAW Model. *J. Appl. Meteor.*, 37(5):449-460.

- Flerchinger, G.N., S.P. Hardegree, and G.L. Johnson. 1998. The Simultaneous Heat and Water (Shaw) Model: A Research Tool for Management Decisions. p. 8.35-8.42 In: *Proceedings of the First Interagency Hydrologic Modeling Conference*, Las Vegas, NV, April 19-23, 1998. Federal Subcommittee on Hydrology, Water Information Coordination Program, U.S. Geological Survey, Reston, Virginia.
- Flerchinger, G.N., T.J. Sauer, and R.A. Aiken. 2003. Effects of crop residue cover and architecture on heat and water transfer at the soil surface. *Geoderma* 116(1-2):217-233.
- Flerchinger, G.N. and S.P. Hardegree. 2004. Modelling near-surface temperature and moisture of post-wildfire seedbed for germination response predictions. *Journal of Arid Environments* 59(2):369-385.
- Flerchinger, G.N., W. Xaio, T.J. Sauer, and Q. Yu. 2009. Simulation of within-canopy radiation exchange. *NJAS – Wageningen Journal of Life Sciences* 57:5-15.
- Flerchinger, G.N., M.L. Reba, and D. Marks. 2012. Measurement of surface energy fluxes from two rangeland sites and comparison with a multilayer canopy model. *Journal of Hydrometeorology* 13(3):1038-1051, doi: 10.1175/JHM-D-11-093.1.
- Flerchinger, G.N., T.G. Caldwell, J. Cho, and S.P. Hardegree. 2012. Simultaneous Heat and Water Model: Model use, calibration and validation. *Transactions of ASABE* 55(4):1395-1411.
- Flerchinger, G.N., M.L. Reba, T.E. Link, D. Marks. 2015. Modeling Temperature and Humidity Profiles within Forest Canopies. *Agricultural and Forest Meteorology* 213:251-262.
- Flerchinger, G.N., X. Chu, K.A. Lohse, P.E. Clark, and M.S. Seyfried. 2024. Parameter Sensitivity and Transferability for Simulating ET and GPP of Sagebrush Ecosystems across a Climate Gradient. *Ecological Modelling* (In Press).
- Flinker, R.H. M.B. Cardenas, T.G. Caldwell, G.N. Flerchinger, R. Rich, and P.B. Reich. 2016. Promise and pitfalls of modeling grassland soil moisture in a free-air CO₂ enrichment experiment (BioCON) using the SHAW model. *Pedosphere* 31(5): 783–795. doi:10.1016/S1002-0160(21)60037-1.
- Gribb, M.M., I. Forkutsa, A. Hansen, D.G. Chandler, and J.P. McNamara. 2009. The effect of various soil hydraulic property estimates on soil moisture simulations. *Vadose Zone Journal* 8:321–331
- Gee, G.W., W.H. Albright, G.V. Wilson, M.J. Fayer, and B. Ogan. 1999. Alternative Cover Assessment Project: Phase 1 Report. Desert Research Institute, Las Vegas, NE.

- Gosselin, J.S., C. Rivard, R. Martel, and R. Lefebvre. 2016. Application limits of the interpretation of near-surface temperature time series to assess groundwater recharge. *Journal of Hydrology* 538:96–108. <http://dx.doi.org/10.1016/j.jhydrol.2016.03.055>.
- Gupta, R. 2005. Investigation of elevation-related controls on semiarid mountain front hydrology by modeling of water balance. M.S. Thesis, Civil and Environmental Engineering, Utah State University, Logan UT. 112 pp.
- Hardegee, S.P., C.A. Moffet, G.N. Flerchinger, J. Cho, B.A. Roundy, T.A. Jones, J.J. James, P.E. Clark and F.B. Pierson. 2013. Hydrothermal assessment of temporal variability in seedbed microclimate. *Rangeland Ecology and Management* 66(2):127-135.
- Hardegee, S.P., R.L. Sheley, S.E. Duke, J.J. James, A.R. Boehm, and G.N. Flerchinger. 2016. Temporal Variability in Microclimatic Conditions for Grass Germination and Emergence in the Sagebrush Steppe. *Rangeland Ecology and Management* 69:123-128. <http://dx.doi.org/10.1016/j.rama.2015.12.002>.
- Hardegee, S.P., R.L. Sheley, J. James, P. Reeves and G.N. Flerchinger. 2022. Post-planting microclimate, germination and emergence of perennial grasses in Wyoming big sagebrush steppe. *Rangeland Ecology & Management* 84:63-74.
- Hardegee, S.P., A.R. Boehm, N.F. Glenn, R.L. Sheley, P.A. Reeves, N.J. Pastick, A.Hojjati, S.P. Boyte, J. Enterkine, C.A. Moffet, and G.N. Flerchinger. 2022. Elevation and aspect effects on soil microclimate and the germination timing of fall-planted seeds. *Rangeland Ecology & Management* 85:15-27.
- Hayhoe, H.N. 1994. Field testing of simulated soil freezing and thawing by the SHAW model. *Can. Agric. Engin.*, 36(4):279-285.
- Huang, M. and J. Gallichand. 2006. Use of the SHAW model to assess soil water recovery after apple trees in the gully region of the Loess Plateau, China. *Agricultural Water Management* 85:67-76.
- Hymer, D.C., M.S. Moran, and T.O. Keefer. 2000. Soil water evaluation using a hydrologic model and calibrated sensor network. *Soil Sci Soc Amer J.*, 64(1):319-326.
- Johnson, A.R. 2005. Assessing the performance of a Salix-based evapotranspiration (ET) cover using the SHAW model. Master's Thesis. College of Environmental Science and Forestry, State University of New York, Syracuse, NY. 142 pp.
- Jin, R., X.Li. 2009. Improving the estimation of hydrothermal state variables in the active layer of frozen ground by assimilating in situ observations and SSM/I data. *Science in China, Series D: Earth Sciences* 52(11):1732-1745
- Kahimba, F.C., R. Sri Ranjan, D.D. Mann. 2009. Modeling soil temperature, frost depth, and soil moisture redistribution in seasonally frozen agricultural soils *Applied Engineering in*

- Kang, E., G. Cheng, K. Song, B. Jin, X. Liu, and J. Wang. 2005. Simulation of energy and water balance in soil-vegetation-atmosphere transfer system in the mountain area of Heihe River Basin at Hexi Corridor of northwest China. *Science in China, Series D: Earth Sciences* 48 (4):538-548
- Kennedy, I. and B. Sharratt. 1997. A comparison of three models for predicting frost in soils. pp. 531-536 In: I.K. Iskandar, E.A. Wright, J.K. Radke, B.S. Sharratt, P.H. Groenevelt, and L.D. Hinzman (eds.), *Proceedings of the International Symposium on Physics, Chemistry, and Ecology of Seasonally Frozen Soils*, Fairbanks, AK, June 10-12, 1997. CRREL Special Report 97-10. U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH.
- Kennedy, I. and B. Sharratt. 1998. Model comparisons to simulate frost depth. *Soil Sci.*, 163(8)636-645.
- Kojima, Y., J. Heitman, G.N. Flerchinger, and R. Horton. 2013. Numerical evaluation of a sensible heat balance method to determine rates of soil freezing and thawing. *Vadose Zone Journal* 12: vzj2012.0053, doi:10.2136/vzj2012.0053.
- Kojima, Y., J.L. Heitman, G.N. Flerchinger, T. Ren, R.P. Ewing, and R. Horton. 2014. Field test and sensitivity analysis of a sensible heat balance method to determine soil ice contents. *Vadose Zone Journal* 13(9) doi:10.2136/vzj2014.04.0036.
- Krøgli, I.K., G. Devoli, H. Colletille, S. Boje, M. Sund, and I.K. Engen. 2018. The Norwegian forecasting and warning service for rainfall- and snowmelt-induced landslides. *Nat. Hazards Earth Syst. Sci.*, 18, 1427–1450. <https://doi.org/10.5194/nhess-18-1427-2018>
- Leites, L.P. 2010. Differences of Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) populations in height growth, water use efficiency, and carbon partitioning responses to changes in climate and water availability. PhD dissertation, Department of Natural Resources, University of Idaho, Moscow, ID. 109 pp.
- Li, K., Y.-Y. Wang, Y. Wang. 2008. Components of energy balance in seasonal waterlogged marsh in the Sanjiang Plain. *Wetland Science* 6 (2), pp. 264-270 (Chinese article with English abstract)
- Li, Ning, Lan Cuo, Yongxin Zhang, and G.N. Flerchinger. 2024. Diurnal soil freeze-thaw cycles and the factors determining their changes in warming climate in the upper Brahmaputra basin of the Tibetan Plateau. *Journal of Geophysical Research: Atmospheres* 129, e2023JD040369. <http://dx.doi.org/10.1029/2023JD040369>
- Li, R.-P., H.-B. Shi, T. Akae, Y.-Q. Zhang. 2009. Study on water-heat-salt transfer in soil freezing-thawing based on Simultaneous Heat and Water model. *Shuili Xuebao/Journal of Hydraulic Engineering* 40 (4):403-412. (Chinese article with English abstract)

- Li, R., H. Shi, T. Akae, Y. Zhang, X. Zhang, G.N. Flerchinger. 2010. Scheme of water saving irrigation in autumn based on SHAW model in Inner Mongolia Hetao irrigation district. *Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering* 26(2):31-36. (Chinese article with English abstract)
- Li, R., H. Shi, G.N Flerchinger, T. Akae, C. Wang. 2012. Simulation of Water and Energy Fluxes of Freezing and Thawing Soils Using the SHAW Model in Inner Mongolia Hetao Irrigation District, China. *Geoderma* 173-174:28–33, doi:10.1016/j.geoderma.2012.01.009.
- Li, R., H. Shi, G.N. Flerchinger, X. Fu, Z. Li. 2013. Modeling the effect of antecedent soil water storage on water and heat status in seasonally freezing and thawing agricultural soils. *Geoderma* 206:70-74.
- Li, X. Y. Yang, X. Zhou, S. Han, H. Li, Y. Yang, and X. Hao. 2023. Accuracy evaluation of ET and its components from three remote sensing ET models and one process based hydrological model using ground measured eddy covariance and sap flow. *J. of Hydrology* 626:130374. <https://doi.org/10.1016/j.jhydrol.2023.130374>
- Li, Y., J. Zhou, W. Kinzelbach, G. Cheng, X. Li, W. Zhao. 2013. Coupling a SVAT heat and water flow model, a stomatal-photosynthesis model and a crop growth model to simulate energy, water and carbon fluxes in an irrigated maize ecosystem. *Agricultural and Forest Meteorology* 176 (2013) 10– 24. doi.org/10.1016/j.agrformet.2013.03.004
- Link, T.E. 2001. The Water and Energy Dynamics of an Old-Growth Seasonal Temperate Rainforest. PhD dissertation, Environmental Sciences, Oregon State University, Corvallis, OR. 169 pp.
- Link, T.E., G.N. Flerchinger, M.H. Unsworth, and D. Marks. 2004. Simulation of water and energy fluxes in an old growth seasonal temperate rainforest using the Simultaneous Heat and Water (SHAW) Model. *Journal of Hydrometeorology* 5(3):443-457.
- Lu, X., R. Li, H. Shi, J. Liang, Q. Miao, and L Fan. 2019. Successive simulations of soil water-heat-salt transport in one whole year of agriculture after different mulching treatments and autumn irrigation. *Geoderma* 344:99-107. <https://doi.org/10.1016/j.geoderma.2019.03.006>
- Lucash, M.S., A.M. Marshall, S.A. Weiss, J. W. McNabb, D. J. Nicolsky, G. N. Flerchinger, T.E. Link, J.G. Vogel, R.M. Scheller, R.Z. Abramoff, and V.E. Romanovsky. 2023. Burning trees in frozen soil: Simulating fire, vegetation, soil, and hydrologic in the boreal forests of Alaska. *Ecological Modelling* 481:110367. <https://doi.org/10.1016/j.ecolmodel.2023.110367>
- Ma, H., Q.Liu. 2011. The analysis of the difference between infrared soil temperature and L band effective soil temperature. 2011 International Workshop on Multi-Platform/Multi-Sensor Remote Sensing and Mapping, M2RSM 2011 , art. no. 5697425

- Marshall, A.M., T.E. Link, L. Tedrow, G.N. Flerchinger, D.G. Marks, and J.T. Abatzoglou, 2019. Warming alters hydrologic heterogeneity: simulated climate sensitivity of hydrology-based microrefugia in the snow-to-rain transition zone. *Water Resources Research* 55. <https://doi.org/10.1029/2018WR023063>.
- Marshall, A.M., T.E. Link, G.N. Flerchinger, D.J. Nicolsky, M.S. Lucash. 2021. Ecohydrologic modeling in boreal deciduous forest: Model evaluation for application in non-stationary climates. *Hydrological Processes* 35(6):e14251. <http://doi.org/10.1002/hyp.14251>
- Marshall, A.M., T.E. Link, G.N. Flerchinger, D.J. Nicolsky, M.S. Lucash. 2021. Importance of parameter and climate data uncertainty for future changes in boreal hydrology. *Water Resources Research* 57, e2021WR029911. <https://doi.org/10.1029/2021WR029911>
- Masin, R., M.C. Zuin, G. Zanin. 2005. Phenological observations on shrubs to predict weed emergence in turf. *International Journal of Biometeorology* 50: 23–32
- Moffet, C.A., S.P. Hardegree, J.T. Abatzoglou, K.C. Hegewisch, R.R. Reuter, R.A. Sheley, M.W. Brunson, G.N. Flerchinger, and A.R. Boehm. 2019. Weather tools for retrospective assessment of restoration outcomes. *Rangeland Ecology and Management* 72:225-229. doi.org/10.1016/j.rama.2018.10.011.
- Mohammed, A.A., R.A. Schincario, W.L. Quinton, R.M. Nagare, and G.N. Flerchinger. 2017. On the use of mulching to mitigate permafrost thaw due to linear disturbances in sub-arctic peatlands. *Ecological Engineering* 102:207-223, doi.org/10.1016/j.ecoleng.2017.02.020.
- McDonald, E.V., F.B. Pierson, G.N. Flerchinger, and L.E. McFadden. 1996. Application of a soil-water balance model to evaluate the influence of Holocene climate change on calcic soils, Mojave Desert, California, U.S.A. *Geoderma*, 74(3-4):167-192.
- McDonald, E.V. 2002. Numerical simulations of soil water balance in support of revegetation of damaged military lands in arid regions. *Arid Land Research and Management*, 16(3):277-290.
- McNamara, J.P., D. Chandler, M. Seyfried, and S. Achet. 2005. Soil moisture states, lateral flow, and streamflow generation in a semi-arid, snowmelt-driven catchment. *Hydrological Processes* 19(20):4023-4038.
- Nassar, I.N., R. Horton, and G. N. Flerchinger. 2000. Simultaneous heat and mass transfer in soil columns exposed to freezing/thawing conditions. *Soil Science*, 165(3):208-216.
- Parkin, G.W., C. Wagner-Riddle, D.J. Fallow, and D.M. Brown. 1999. Estimated seasonal and annual water surplus in Ontario. *Can. Water Resour. J.*, 24(4):277-292.
- Pierson, F.B., J.R. Wight, G.N. Flerchinger, W.P. Kemp and J.R. Fisher. 1996. Simulating of

- near-surface soil temperature on rangelands. pp. V.9-1 - V.9-5 In: *Grasshopper Integrated Pest Management User Handbook*. USDA/APHIS, Washington, D.C. Tech Pub. 1809.
- Pierson, F.B., G.N. Flerchinger and J.R. Wight. 1992. Simulating near-surface soil temperature and water on sagebrush rangelands: A comparison of models. *Trans. Amer. Soc. of Agric. Engr.*, 35(5):1449-1455.
- Preston, G.M. and R.A. McBride. 2004. Assessing the use of poplar tree systems as a landfill evapotranspiration barrier with the SHAW model. *Waste Management & Research* 22(4):291-305.
- Qin, Z., Q.Yu, S.Xu, B.Hu, X.Sun, E.Liu, J.Wang, G. Yu, Z. Zhu. 2005. Water, heat fluxes and water use efficiency measurement and modeling above a farmland in the North China Plain. *Science in China, Series D: Earth Sciences* 48(SUPPL.1):207-217.
- Scanlon, B.R., M. Christman, R. Reedy, I. Porro, J. Simunek, and G.N. Flerchinger. 2002. Intercode comparison for simulating water balance of surficial sediments in semiarid regions. *Water Resour. Res.* 38(12):1323-1323.
- Santanello Jr, .J.A. and M.A. Friedl. 2001. Diurnal relationships between soil heat flux and net radiation over a range of surface conditions applied to land surface energy balance modeling. Paper JP1.5 In: 16th Annual Conference on Hydrology. American Meteorological Society, Boston, MA.
- Santanello Jr, .J.A. and M.A. Friedl. 2003. Diurnal covariation in soil heat flux and net radiation. *J. Appl. Meteor.*, 42(6):851-862.
- Sharratt, B.S. and G.N. Flerchinger. 1995. Straw color for altering soil temperature and heat flux in the subarctic. *Agron. J.*, 87(5):814-819.
- Singh, U.B., S.C. Gupta, G.N. Flerchinger, J.F. Moncrief, R.G. Lehmann, and N.J. Fendinger, S.J. Traina, and T.J. Logan. 2000. Modeling polydimethylsiloxane degradation based on soil water content. *Environ. Sci. & Tech.*, 34(2):266-273.
- Seyfried, M.S., G.N. Flerchinger, S. Bryden, T.E. Link, D.G. Marks, and J.P. McNamara 2021. Slope/Aspect Controls on Soil Climate: Field Documentation and Implications for Large-Scale Simulation of Critical Zone Processes. *Vadose Zone Journal* 2021;e20158. <http://doi.org/10.1002/vzj2.20158>
- Wang, X., M. Ma, Y. Song, J. Tan, and H. Wang. 2014. Coupling of a biogeochemical model with a simultaneous heat and water model and its evaluation at an alpine meadow site. *Environ. Earth Sci.* 72:4085-4096.
- Wang, H., G.N. Flerchinger, R. Lemke, K. Brandt, T. Goddard, and C. Sprout. 2010. Improving SHAW long-term soil moisture prediction for continuous wheat rotations, Alberta,

Canada. *Canadian Journal of Soil Science* 90:37-53.

- Warix, S.R., S.E. Godsey, G. Flerchinger, S. Havens, K.A. Lohse, H.C. Bottenberg, X. Chu, R. Hale, and Mark Seyfried. 2023. Evapotranspiration and groundwater inputs control the timing of diel cycling of stream drying during low-flow periods. *Frontiers in Water* 5:1279838. doi:10.3389/frwa.2023.1279838.
- Winter-Billington, A., R. Dadic, R.D. Moore, G. Flerchinger, P. Wagnon, and A. Banerjee. 2022. Modelling Debris-Covered Glacier Ablation Using the Simultaneous Heat and Water Transport Model. Part 1: Model Development and Application to North Changri Nup. *Frontiers in Earth Science* 10:796877. doi: 10.3389/feart.2022.796877.
- Wei, L., T.E. Link, A.T. Hudak, J.D. Marshall, K.L. Kavanagh, J.T. Abatzoglou, H. Zhou, R.E. Pangle, and G.N. Flerchinger. 2016. Simulated water budget in a forested watershed within Priest River Experimental Forest, northern Idaho, USA. *Hydrologic Processes* 30:2000-2013. DOI: 10.1002/hyp.10769.
- Xiao, W., Y.-F. Zheng, and Q. Yu. 2005. Evaluation of SHAW model in simulating energy balance, leaf temperature and micrometeorological variables within a maize canopy. *Acta Ecologica Sinica* 25 (7):1626-1634. (Chinese article with English abstract)
- Xiao, W., G.N. Flerchinger, Q. Yu, and Y. Zheng. 2006. Evaluation of SHAW model in simulating the components of net all-wave radiation. *Trans. of ASABE* 49(5):1351-1360.
- Xiao, W., Q. Yu, G.N. Flerchinger and Youfei Zheng. 2006. Evaluation of SHAW model in simulating energy balance, leaf temperature and micrometeorological variables within a maize canopy. *Agronomy Journal* 98:722-729.
- Xu, X., J.L. Nieber, J.M. Baker and D.E. Newcomb. 1991. Field testing of a model for water flow and heat transport in variably saturated, variably frozen soil. p 300-308 In: Transportation Research Record No. 1307, Transp. Res. Board, Nat. Res. Council, Washington D.C.
- Xun, Y., X. Xiao, C. Sun, H. Ming, Y. Gao, G. Huang, X. Xu. 2022. Modeling heat-water-salt transport, crop growth and water use in arid seasonally frozen regions with an improved coupled SPAC model. *J. of Hydrology* 615:128703. <https://doi.org/10.1016/j.jhydrol.2022.128703>
- Yang, Q., H. Zuo, X. Xiao, S. Wang, B. Chen, J. Chen. 2012. Modelling the effects of plastic mulch on water, heat and CO₂ fluxes over cropland in an arid region. *Journal of Hydrology* 452–453 (2012) 102–118.
- Yin, Z., H. Ouyang, X. Xu, M. Song, D. Duan and X. Zhang. 2009. Water and heat balance and water use of shrub grassland and crop fields in Lhasa River Valle. *Acta Geographica Sinica* 64(3):303-314. (Chinese article with English abstract)

- Yin, Z.-F., H. Ouyang, X.-L. Xu, and X.-Z. Zhang. 2009. Simulation of the water transfer processes of winter wheat field ecosystem using SHAW in Lhasa river valley *Shengtai Xuebao/ Acta Ecologica Sinica* 29(4):2010-2019. (Chinese article with English abstract)
- Yin, Z.F., H. Ouyang, H.Chen. 2010. Simulating soil freezing and thawing of temperate desert ecosystem on the Qinghai-Tibet Plateau. *Procedia Environmental Sciences* 2:476-485
- Yu, Q., G.N. Flerchinger, J.A. Kozak, S. Xu, L. Ma and L. Ahuja. 2007. Energy balance simulation of a wheat canopy using the RZ-SHAW (RZWQM-SHAW) model. *Transactions of ASABE* 50(5):1507-1516.
- Yu, Q. and G.N. Flerchinger. 2008. Extending Simultaneous Heat and Water (SHAW) model to simulate carbon dioxide and water fluxes over wheat canopy. Chapter 7 In: In L.R Ahuja, V.R. Reddy, S.A. Saseendran, and Q. Yu (eds.) *Response of crops to limited water: Understanding and modeling water stress effects on plant growth processes*. Advances in Agricultural Systems Modeling Ser. 1. ASA, CSSA, SSSA, Madison, WI. 436 pp.
- Zhang, Y., S.K. Carey, W.L. Quinton, J.R. Janowicz, J.W. Pomeroy, and G.N. Flerchinger. 2010. Comparison of algorithms and parameterisations for infiltration into organic-covered permafrost soils. *Hydrology and Earth System Sciences* 14:729-750.
- Zhang, Yanlin, G. Cheng, X. Li, X. Han, L. Wang, H. Li, X. Chang, and G.N. Flerchinger. 2013. Coupling of the simultaneous heat and water model with a distributed hydrological model and evaluation of the combined model in a cold region watershed. *Hydrological Processes* 27:3762–3776. DOI: 10.1002/hyp.9514
- Zhang, Yanlin, G. Cheng, X. Li, H. Jin, D. Yang, G.N. Flerchinger, X. Chang, V.F. Bense, X. Han, and J. Liang. 2017. Influences of frozen ground and climate change on hydrological processes in an alpine watershed: A case study in the upstream area of the Hei'he River, Northwest China. *Permafrost and Periglacial Processes* 28(2):420–432. DOI: 10.1002/ppp.1928.
- Zhang, Y., X. Li., G. Cheng, H. Jin, D. Yang, G.N. Flerchinger, X. Chang, and X. Wang. 2018. Influence of topographic shadows on the thermal and hydrological processes in a cold and mountainous watershed in the Northwest China. *Journal of Advances in Modeling Earth Systems* 10:1439–1457. <https://doi.org/10.1029/2017MS001264>.
- Zhao, Y., S. Peth, R. Horn, J. Krümmelbein, B. Ketzer, Y. Gao, J. Doerner, C. Bernhofer, X. Peng. 2010. Modeling grazing effects on coupled water and heat fluxes in Inner Mongolia grassland. *Soil and Tillage Research* 109(2):75-86
- Zhao, Y. Z. Nan, Z. Cao, H. Ji, and J. Hu. 2023. Evaluation of Parameterization Schemes for Matric Potential in Frozen Soil in Land Surface Models: A Modeling Perspective. *Water Resources Research* 59, e2023WR034644. <https://doi.org/10.1029/2023WR034644>
- Zhou, S., T. Hu, R. Zhu, F. Wu, and X. Wang. 2023. A bilevel modeling approach for optimizing

irrigation canal scheduling under a hierarchical institutional arrangement. *Agric. Water Mgt.* 284:108322. <https://doi.org/10.1016/j.agwat.2023.108322>