

Joshua K. Roundy

Harold A. and Donna R. Phelps Chair's Council Associate Professor
Department of Civil, Environmental, and Architectural Engineering

University of Kansas, <https://hydrology.ku.edu>

jkroundy@ku.edu, (785)-864-3134

Professional Engineer State of Kansas License Number 29215

Google Scholar H-Index: 20, Total Citations: 2972, Citations-2025: 294

EDUCATION

Ph.D. Princeton University: Civil & Environmental Engineering, (2014).

M.S. Utah State University: Civil & Environmental Engineering, Emphasis Water Resources, (2009).

B.S. Utah State University: Civil & Environmental Engineering, Mathematics Minor, (2009).

EMPLOYMENT HISTORY

Academic/Research

Associate Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas, Lawrence, Kansas, 2021 - Present.

Assistant Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas, Lawrence, Kansas, 2015 - 2021.

NASA Post-Doctoral Fellow, Hydrologic Science Branch, Goddard Space Flight Center, Greenbelt Maryland, 2014 - 2015.

Consulting

Hydrology-Water Resources Consultant, Black & Veatch, Kansas City, Missouri, 2022-2025.

State of Kansas Professional Screening Panel (2024).

Reviewer Future Climate Projections for Johnson County (2023-2024).

TEACHING EXPERIENCE

List of Courses Taught

CE 320 Numerical Methods (Fall 2026) – Enrolled:20, Average Student Eval: -/5.0

CE 552 Water Resources Engineering (Fall 2025) – Enrolled:40, Average Student Eval: 4.97/5.0

CE 760 Stochastic Hydrology (Fall 2025) – Enrolled: 14, Average Student Evaluation: 4.9/5.0

CE 320 Numerical Methods (Fall 2024) – Enrolled:10, Average Student Eval: 4.1/5.0

CE 552 Water Resources Engineering (Fall 2024) – Enrolled:43, Average Student Eval: 4.53/5.0

CE 751 Physical Hydrology (Fall 2023) – Enrolled: 12, Average Student Evaluation: 4.71/5.0

CE 552 Water Resources Engineering (Fall 2023) – Enrolled:41, Average Student Eval:4.93/5.0

CE 455 Hydrology (Spring 2023) – Enrolled: 53, Average Student Evaluation: 4.69/5.0

CE 760 Stochastic Hydrology (Spring 2023) – Enrolled: 14, Average Student Evaluation: 4.79/5.0

CE 552 Water Resources Engineering (Fall 2022) – Enrolled:48, Average Student Evaluation: 4.5/5.0

CE 455 Hydrology (Spring 2022) – Enrolled: 51, Average Student Evaluation: 4.31/5.0

CE 751 Physical Hydrology (Fall 2021) – Enrolled: 11, Average Student Evaluation: 4.66/5.0

CE 552 Water Resources Engineering (Fall 2021) – Enrolled:53, Average Student Evaluation: 4.8/5.0

CE 625 Applied Probability (Summer 2021) – Enrolled: 8, Average Student Evaluation: 4.75/5.0

CE 625 Applied Probability (Spring 2021) – Enrolled: 27, Average Student Evaluation: 4.38/5.0

CE 455 Hydrology (Spring 2021) – Enrolled: 66, Average Student Evaluation: 4.5/5.0

CE 552 Water Resources Engineering (Fall 2020) – Enrolled:47, Average Student Evaluation: 4.8/5.0

CE 760 Stochastic Hydrology (Spring 2020) – Enrolled: 10, Average Student Evaluation: -/5.0
CE 455 Hydrology (Spring 2020) – Enrolled: 62, Average Student Evaluation: -/5.0
CE 552 Water Resources Engineering (Fall 2019) – Enrolled:41, Average Student Evaluation: 4.7/5.0
CE 751 Physical Hydrology (Spring 2019) – Enrolled: 11, Average Student Evaluation: 4.66/5.0
CE 455 Hydrology (Spring 2019) – Enrolled: 54, Average Student Evaluation: 4.54/5.0
CE 552 Water Resources Engineering (Fall 2018) – Enrolled:33, Average Student Evaluation: 4.2/5.0
CE 455 Hydrology (Spring 2018) – Enrolled: 46, Average Student Evaluation: 4.41/5.0
CE 760 Stochastic Hydrology (Fall 2017) – Enrolled: 15, Average Student Evaluation: 4.55/5.0
CE 455 Hydrology (Spring 2017) – Enrolled: 56, Average Student Evaluation: 4.58/5.0
CE 625 Probability and Statistics (Spring 2017) – Enrolled: 3, Average Student Evaluation: 5.0/5.0
CE 751 Physical Hydrology (Fall 2016) – Enrolled: 11, Average Student Evaluation: 4.45/5.0
CE 455 Hydrology (Spring 2016) – Enrolled: 38, Average Student Evaluation: 4.75/5.0
CE 455 Hydrology (Fall 2015) – Enrolled: 15, Average Student Evaluation: 4.36/5.0

Advising

Undergraduate Research (11)
Masters (10)
Doctoral (4)

Awards

Gould Teaching Award for Outstanding Undergraduate Educator (2022).
Center for Teaching Excellence Internal Grant: Integrating Python Based Active Learning Modules into the CEAE Curriculum. Total Award Amount: \$3000.
HydroLearn Fellow (2020).
Center for Teaching Excellence Internal Grant: Incorporating project-based learning into the undergraduate hydrology course. Total Award Amount: \$1284.

GRANT FUNDING

Current Projects

Roundy, J. K. (Principal). Scenario Analysis for Kansas Reservoirs. **Kansas Water Office**, \$70,779, (May 2026 - Feb 2027).

Roundy, J. K. (Co-Principal). Developing an early warning system for algal blooms, disruptive metals, and sediment monitoring via in-lake buoys for Kansas Lakes. **Kansas Water Office**, \$875,000, (Apr 2026 - Dec 2027).

Roundy, J. K. (Co-Principal). Neosho River Baseline and Reservoir Sediment Testing. **Kansas Water Office**, \$305,525, (March 2026 - May 2027).

Roundy, J. K. (Co-Investigator), Tony Layzell (PI). A statewide Inventory of the Dominant Reservoir Sedimentation Sources to Inform Targeted Watershed conservation and upstream mitigation practices. **Kansas Water Office**, \$102,764, (May 2025 - Dec 2026).

Completed Projects

Roundy, J. K. (Co-Investigator), Amy Hansen (PI). Monitoring and modeling Hillsdale Lake under changing land use and climate drivers to assess tipping point of hypereutrophic lake conditions. **Kansas Department of Health & Environment**, \$92,142 , (Aug 2022 - April 2026).

Roundy, J. K. (Co-Investigator), Tony Layzell (PI). A statewide Inventory of the Dominant Reservoir Sedimentation Sources to Inform Targeted Watershed conservation and upstream mitigation practices. **Kansas Water Office**, \$107,623, (Aug 2022 - Dec 2025).

Roundy, J. K. (Co-Investigator), Ted Harris (PI). Marion Lake Trophic Condition and Stratification Evaluation. **Kansas Department of Health & Environment**, \$70,000, (May 2023 - December 2025).

Roundy, J. K. (Principal). Uncovering Skill in Drought Prediction Through Land-Atmosphere Interactions. **General Research Fund (Internal)**, \$11,676, (July 2024 - June 2025).

Roundy, J. K. (Principal) and Sam Zipper. Hydrologic Stable States between Groundwater and Land-Atmosphere. **KU Research Go (Internal)**, \$17,456, (May 2024 - May 2025).

Roundy, J. K. (Principal) and Joseph Santanello. Global Satellite Based Prediction of Drought Evolution. **National Aeronautics and Space Administration - SMAP Science Team**, \$449,806, (November 2020 – September 2024).

Roundy, J. K. (Principal) and Richard Rockel. Incorporating Climate Uncertainty into Water Allocations in Kansas. **Bureau of Reclamation**, \$195,648, (January 2021 - June 2024).

Roundy, J. K. (Principal) and Alexandra Kondyli. Mitigating Concentrated Sheet Flow of Water at Ends of Super Elevated Curves. **Kansas Department of Transportation**, \$78,650, (Aug 2021 - Jan 2023).

Roundy, J.K. (Principal). Appendix C: SMD Earth Sciences Division - Assimilation of Satellite Data for Prediction Cyanohabs in Kansas. **Kansas NASA EPSCoR**, \$99,711, (June 2021 - September 2022).

Roundy, J. K. (Co-Principal), Emily Arnold (PI). Airborne Snow Depth Retrieval for Improved Hydrological Modeling. **National Oceanic and Atmospheric Administration**, \$499,926, (September 2019 - September 2022).

Roundy, J. K. (Principal), Amy Hansen and Admin Husic. Bridge Deck Drainage: Evaluation of KDOT's Current Design Guidance. **Kansas Department of Transportation**, \$65,638, (June 2019 - May 2021).

JOURNAL ARTICLES (30) * Indicates student

Makhasana, P. R.*, Santanello, J. A., Lawston, P. M., & **Roundy, J. K.** (2026). Understanding Land Atmosphere Interactions During Weather Whiplash Events. *Journal of Hydrometeorology*, 27, 437–452, doi.org/10.1175/JHM-D-24-0171.1.

Carmichael, G.R., Swap, R.J., Hunt, E.D., Bell, J., Berman, J.D., Stanier, C.O., McGill, M.J., Morgan, C.M., Ochsner, T., Ojima, D.S., Pierce, R.B., Barros, A.P., Miller, H.S., Rattling Leaf, J., **Roundy, J. K.**, Salem, A.K., Wang, J., Wegiel, J.W. and Wildcat, D. (2025). The Heartland Environmental Alliance for Resilience & Transformation (HEART) – Improving the Lives and Livelihoods of People Across the Heartland Through Environmental Change Resilience Research, Education, and Outreach. *Perspectives of Earth and Space Scientists*, 6, 1, e2024CN000271, doi.org/10.1029/2024CN000271.

Husic, A., Hammond, J., Price, A.N., and **Roundy, J. K.** (2025). Interrogating process deficiencies in large-scale hydrologic models with interpretable machine learning. *Hydrology and Earth System Sciences*, 29, 18, 4457-4472, doi.org/10.5194/hess-29-4457-2025.

Okechukwu, K.E.*, Li, X., Kastens, J., **Roundy, J. K.**, and Mechem, D.B. (2025). Evaluating IMERG Satellite Precipitation-Based Design Storms in the Conterminous US Using NOAA Atlas Datasets. *Water*, 17, 17, 2602, doi.org/10.3390/w17172602.

Samadi, V., Fowler, H.J., Lamond, J., Wagener, T., Brunner, M., Gourley, J., Moradkhani, H., Popescu, I., Wasko, C., Wright, D., Wu, H., Zhang, K., Arias, P.A. Duan, Q., Nazemi, A., van Oevelen, P.J., Prein, A. F., **Roundy, J. K.**, Saberian, M., and Umutoni, L. (2025). The Needs, Challenges, and Priorities for Advancing Global Flood Research. *WIREs Water*, 12, 3, e70026, doi.org/10.1002/wat2.70026.

Makhasana, P. R.*, Santanello, J.A., Lawston-Parker, P.M., and **Roundy, J. K.** (2024). Deducing land-atmosphere coupling regimes from SMAP soil moisture. *Hydrology and Earth System Sciences*, 28, 22, 5087-5106, doi.org/ 10.5194/hess-28-5087-2024.

Whitesel, D., Mahmood, R., Phillips, C., **Roundy, J. K.**, Rappin, E., Flanagan, P., Santanello, J., Nair, U., & Pielke, R. (2024). Assessing Convective Environment over Irrigated and Non-Irrigated Land Uses with Land-Atmosphere Coupling Metrics: Results from the GRAINEX. *Journal of Hydrometeorology*, 25, 7, 1061, doi.org/10.1175/JHM-D-23-0187.1.

Hosseini, A.*, Mocko, D., Brunsell, N.A., Kumar, S.V., Mahanama, S., Arsenault, K. and **Roundy, J.K.** (2022). Understanding the Impact of Vegetation Dynamics on the Water Cycle in the Noah-MP Model. *Frontiers in Water*, 4:925852, doi.org/10.3389/frwa.2022.925852.

Roundy, J.K., Gallagher, M.A. and Byrd, J.L. (2022) An innovative active learning module on snow and climate modeling. *Frontiers in Water*, 4:912776. doi.org/10.3389/frwa.2022.912776.

Michalek, A*, Husic, A, **Roundy, J. K** & Hansen, A. (2021). Assessment of Climatic and Anthropogenic Controls on Bridge Deck Drainage and Sediment Removal. *Water*, 13, 24, 3556. doi.org/10.3390/w13243556.

Zhang, Y*, **Roundy, J. K** & Santanello, J. A. (2021). Evaluating the impact of model resolutions and cumulus parameterization on precipitation in NU-WRF: A case study in the Central Great Plains. *Environmental Modelling & Software*, 145, 7403-7420. doi.org/10.1016/j.envsoft.2021.105184.

Kam, J. Kim, S & **Roundy, J. K.** (2021). Did a skillful prediction of near-surface temperatures help or hinder forecasting of the 2012 US drought? *Environmental Research Letters*, 16(3), 034044. doi.org/10.1088/1748-9326/abe1f6.

Zeng, Dingwen, Yuan, Xing & **Roundy, J. K.** (2019). Effect of Teleconnected Land-atmosphere Coupling on Northeast China Persistent Drought in Spring-Summer of 2017. *Journal of Climate*, 32(21), 7403-7420. doi:10.1175/JCLI-D-19-0175.1.

Santanello, J. A., Dirmeyer, P. A., Ferguson, C. R., Findell, K. L., Tawfik, A. B., Berg, A., Ek, M., Gentine, P., Guillod, B., van Heerwaarden, C., **Roundy, J. K.**, and Wulfmeyer, V. (2018). Land-Atmosphere Interactions: The LoCo Perspective. *Bulletin of the American Meteorological Society*, 99(6). doi: 10.1175/BAMS-D-17-0001.1.

Roundy, J. K., & Santanello, J. A. (2017). Utility of Satellite Remote Sensing for Land-Atmosphere Coupling and Drought Metrics. *Journal of Hydrometeorology*, 18(3), 863–877. doi: 10.1175/JHM-D-16-0171.1.

Demaria, E. M., **Roundy, J. K.,** Wi, S., & Palmer, R. N. (2016). The Effects of Climate Change on Seasonal Snowpack and the Hydrology of the Northeastern and Upper Midwest United States. *Journal of Climate*, 29(18), 6527–6541.

Lievens, H., De Lannoy, G., Al Bitar, A., Drusch, M., Dumedah, G., Franssen, H.-J. H., Kerr, Y., Tomer, S. K., Martens, B., Merlin, O., Pan, M., **Roundy, J. K.,** & Other. (2016). Assimilation of SMOS soil moisture and brightness temperature products into a land surface model. *Remote Sensing of Environment*, 180, 292–304. doi:10.1016/j.rse.2015.10.033

Demaria, E. M., Palmer, R. N., & **Roundy, J. K.** (2016). Regional climate change projections of streamflow characteristics in the Northeast and Midwest US. *Journal of Hydrology: Regional Studies*, 5, 309–323. doi:10.1016/j.ejrh.2015.11.007

Song, H.-J., Ferguson, C. R., & **Roundy, J. K.** (2016). Land-atmosphere coupling at the Southern Great Plains Atmospheric Radiation Measurement (ARM) field site and its role in anomalous afternoon peak precipitation. *Journal of Hydrometeorology*, 17(2), 541–556. doi:10.1175/JHM-D-15-0045.1

Yuan, X., **Roundy, J. K.,** Wood, E. F., & Sheffield, J. (2015). Seasonal forecasting of global hydrologic extremes: system development and evaluation over GEWEX basins. *Bulletin of the American Meteorological Society*, 96(11). doi:10.1175/BAMS-D-14-00003.1

Lievens, H., Kumar Tomer, S., Al Bitar, A., De Lannoy, G. J.M., Drusch, M., Dumedah, G., Hendricks Franssen, H.-J., Kerr, Y., Pan, M., **Roundy, J. K.,** Vereecken, H., Walker, J. P., Wood, E. F., Verhoest, N. E.C., & Pauwels, V. R.N. (2015). SMOS soil moisture assimilation for improved hydrologic simulation in the Murray Darling Basin, Australia. *Remote Sensing of Environment*, 168, 146–162. doi:10.1016/j.rse.2015.06.025

Santanello, J. A., **Roundy, J. K.,** & Dirmeyer, P. A. (2015). Quantifying the Land-Atmosphere Coupling Behavior in Modern Reanalysis Products over the U.S. Southern Great Plains. *Journal of Climate*, 28(14), 5813–5829. doi:10.1175/JCLI-D-14-00680.1

Roundy, J. K., Yuan, X., Schaake, J., & Wood, E. F. (2015). A framework for analyzing seasonal prediction through canonical event analysis. *Monthly Weather Review*, 143(6), 2404–2418. doi:10.1175/MWR-D-14-00190.1

Roundy, J. K., & Wood, E. F. (2015). The attribution of land-atmosphere interactions on the seasonal predictability of drought. *Journal of Hydrometeorology*, 16(2), 793–810. doi:10.1175/JHM-D-14-0121.1

Chaney, N. W., **Roundy, J. K.,** Herrera, J. E., & Wood, E. F. (2015). High-Resolution Modeling of the Spatial Heterogeneity of Soil Moisture: Applications in Network Design and Spatial Downscaling. *Water Resources Research*, 51(1), 619–638. doi:10.1002/2013WR014964

Roundy, J. K., Ferguson, C. R., & Wood, E. F. (2013). Impact of land-atmospheric coupling in CFSv2 on drought prediction. *Climate Dynamics*, 43(1-2), 421–434. doi:10.1007/s00382-013-1982-7

Roundy, J. K., Ferguson, C. R., & Wood, E. F. (2013). Temporal Variability of Land–Atmosphere Coupling and Its Implications for Drought over the Southeast United States. *Journal of Hydrometeorology*, 14(2), 622-635. doi:10.1175/JHM-D-12-090.1

Yuan, X., Wood, E. F., **Roundy, J. K.**, & Pan, M. (2013). CFSv2-based seasonal hydroclimatic forecasts over conterminous United States. *Journal of Climate*, 26(13), 4828-4847. doi:10.1175/JCLI-D-12-00683.1

Wood, E. F., Roundy, J. K., et al. (2012). Reply to comment by Keith J. Beven and Hannah L. Cloke on “Hyperresolution global land surface modeling: Meeting a grand challenge for monitoring Earth's terrestrial water”. *Water Resources Research*, 48(1), W01802. doi:10.1029/2011WR011202

Wood, E. F., **Roundy, J. K.**, et al. (2011). Hyperresolution global land surface modeling: Meeting a grand challenge for monitoring Earth's terrestrial water. *Water Resources Research*, 47(5), W05301. doi:10.1029/2010wr010090

Journal Articles In Progress (2)

Ekpetere, K. O.* & **Roundy, J. K.** (Under Review). Global Runoff Depth Dynamics in Recent Decades: A Hybrid Approach Integrating Semi- physical Process, Bayesian–Gaussian Framework, and Hexagonal Grid System for Extremes Prediction. *Water Resources Management*.

Whitesel, D., Mahmood, R., Flanagan, P., Phillips, C., **Roundy, J. K.**, Pielke, R., Nair, U., & Rappin, E. (Under Review). Bi-hourly Changes in Land-Atmosphere Coupling Metrics and Convective Environments During GRAINEX. *Journal of Geophysical Research: Atmospheres*.

BOOK CHAPTERS (2)

Roundy, J. K., Schaake, J., & Duan, Q. (2019). Hydrological Predictability, Scales, and Uncertainty Issues. In: Duan Q., Pappenberger F., Thielen J., Wood A., Cloke H., Schaake J. (eds) *Handbook of Hydrometeorological Ensemble Forecasting*. Springer, Berlin, Heidelberg. doi.org/10.1007/978-3-642-40457-3_8-1

Wood E.F., Yuan X., **Roundy J.K.**, Pan M., Luo L. Q. (2015). Seasonal Drought Forecasting on the Example of the USA. In: Duan Q., Pappenberger F., Thielen J., Wood A., Cloke H., Schaake J. (eds) *Handbook of Hydrometeorological Ensemble Forecasting*. Springer, Berlin, Heidelberg. doi.org/10.1007/978-3-642-40457-3_52-1.

REPORTS (4)

McVey, I., Husic, A., Collins, W., Lequesne, R. D., & **Roundy, J. K.** (2024). Development of Adjustment Factors and Bridge Load Ratings via Statistical Analyses of the National Bridge Inventory Database. *Report for Kansas Department of Transportation*.

Harris, T.D., Hamersky, M., Frazier, C.F., Morales, J.O., Kniola, K.M., Kelly, A., Ungerer, L., Martin, A., Hosseini*, A., Huggins, D., Verhulst, G., **Roundy, J.**, Bosnack, B., Willis, N. (2024). Nutrient mitigation experiments and water quality monitoring in Marion Reservoir, Kansas and its watershed from 2019-2023. *Kansas Biological Survey Report 213*.

Alani, A*, **Roundy, J. K** & Kondyli, A. (2023). Mitigating Concentrated Sheet Flow of Water at Ends of Super-Elevated Curves. *Report for Kansas Department of Transportation*.

Michalek, A*, Husic, A, **Roundy, J. K** & Hansen, A. (2021). Bridge Deck Drainage: Evaluation of KDOT's Current Design Guidance. *Report for Kansas Department of Transportation*.

SCHOLARLY PRESENTATIONS (81)

Invited (20)

Roundy, J. K. (2025, October). The Challenges and Future Prospects of Stormwater Management. 2025 KC Urban Stormwater Conference, Lee's Summit, MO (Keynote Speaker).

Roundy, J. K. (2025, March). Predicting Drought, is it Possible? NOAA GFDL, Seminar Series, Princeton, NJ (Oral).

Roundy, J. K. (2025, March). Predicting Drought, is it Possible? University of Missouri, Civil and Environmental Engineering Department, Columbia, MO (Oral).

Roundy, J. K. (2024, November). Climate Projections and Drivers in Kansas. Governor's Conference on the Future of Water in Kansas, Manhattan, KS (Oral).

Roundy, J. K. (2024, October). Soil Moisture Driven Land-Atmosphere Interactions and the Connection to Drought. Coordinated Cosmic-Ray Observation System Conference, Lincoln, NE (Oral).

Roundy, J. K. (2023, October). Soil Moisture and Land-Atmosphere Coupling with Higher Resolution Soil Moisture. NASA JPL CCS workshop: Science of 10-km L-band Radiometry, Pasadena, CA (Oral).

Hosseini, A.* and **Roundy, J. K.** (2022, December). Impact of Climate Variability and Weather Extremes on Terrestrial and Aquatic Systems. NASA GSFC Hydrologic Seminar, Virtual (Oral).

Roundy, J. K. (2021, October). Drought Prediction, is it possible? Seminar Series Department of Civil Engineering The University of Iowa, Virtual (Oral).

Roundy, J. K. (2020, October). Global Trends in Land-Atmosphere Interactions. Seminar Series Department of Geological and Atmospheric Sciences, Iowa State, Virtual (Oral).

Roundy, J. K. (2020, August). Computational Hydrology Research Group. Hydroinformatics Lab, BYU, Virtual (Oral).

Roundy, J. K. (2019, November). Global Trends in the Coupling Drought Index. Workshop on Land-atmosphere feedbacks and dry extremes under changing climate, Ghent, Belgium (Oral).

Roundy, J. K. (2019, November). The National Water Model and the KU connection. USGS, Lawrence, Kansas (Oral).

Roundy, J. K. (2018, April). Robust and Resilient Engineering Through Prediction of the Water and Climate System. Utah Valley University, Orem, Utah (Oral).

Roundy, J. K., & Santanello, J. (2017, December). The Impact of Land-Atmosphere Coupling on the 2017 Northern Great Plains Drought. AGU Fall Meeting, New Orleans, LA (Oral).

Roundy, J. K. (2016, May). A Stochastic Model for Seasonal Prediction of Drought. Computational and Applied Math Seminar at the University of Kansas, Lawrence, KS (Oral).

Roundy, J. K. (2016, March). The Water Time Machine. Kansas Geological Survey, Lawrence, KS (Oral).

Roundy, J. K. (2015, November). Using Satellite Remote Sensing for Drought Monitoring and Prediction. Department of Geography, University of Kansas, Lawrence, KS (Oral).

Roundy, J. K. (2015, October). Using Satellite Remote Sensing for Drought Monitoring and Prediction. University at Albany, Albany, New York (Oral).

Roundy, J. K. (2015, March). Water Sustainability through seasonal prediction. Arizona State University, Tempe, AZ (Oral).

Other (62)

Roundy, J. K. , Findell, K., and Hsu, H. (2026, January). Preferential Tendency for Convective Rainfall over Dry and Wet Soils on a Global Scale. AMS Annual Meeting, Houston, TX, (Poster).

Roundy, J. K., and Lowman, L.L. (2025, December). Vegetation Whiplash: Understanding Global Trends in Dramatic Vegetation Shifts. AGU Annual Meeting, New Orleans, LA (Oral).

Roundy, J. K. , Makhasana, P*, and Zipper, S. (2025, January). Drought Prediction over the U.S. Using a Statistical Model of Groundwater and Land-Atmosphere Stable States. AMS Annual Meeting, New Orleans, LA, (Poster).

Makhasana, P*, **Roundy, J. K.**, Lawston-Parker, P., and Santanello, J.A. (2024, December). Understanding Land-Atmosphere Interactions During Weather Whiplash Events. AGU Annual Meeting, Washington DC (Oral).

Makhasana, P. *, **Roundy, J. K.**, Zipper, S., (2024, December). Understanding the Connection between Groundwater Stable States and Land-Atmosphere Interactions. AGU Annual Meeting, Washington DC (Poster).

Roundy, J. K. , Makhasana, P.*, Ferguson, C.R. and Santanello, J.A. (2024, December). Non-local and Local Precipitation Drivers in the 2018 Short-lived Drought. AGU Annual Meeting, Washington DC (Poster).

Roundy, J. K., Makhasana, P. *, Lawston-Parker, P and Santanello, J.A (2024, July). Short Term Drought Prediction Based on Stable States Between the Land and the Atmosphere. GEWEX Open Science Conference, Sapporo, Japan (Oral).

Makhasana, P. *, **Roundy, J. K.**, Lawston-Parker, P and Santanello, J.A (2024, January). The Uncertainty in Land-Atmosphere Coupling-based Drought Metrics due to Different Soil Moisture Products. AMS Annual Meeting, Baltimore, MD (Poster).

Roundy, J. K., Makhasana, P. *, Lawston-Parker, P and Santanello, J.A (2024, January). Short Term Drought Prediction Based on Stable States Between the Land and the Atmosphere. AMS Annual Meeting, Baltimore, MD (Oral).

Makhasana, P.*, **Roundy, J. K.**, Lawston-Parker, P., and Santanello, J.A. (2023, December). Uncertainty in Drought Representation from Land-Atmosphere Coupling Classification Using SMAP Level 3 and Level 4 Soil Moisture Products. AGU Fall Meeting, San Francisco, CA, (Oral).

Chapman, C.*, Rockel, R., **Roundy, J. K.** (2023, November). Incorporating Climate Uncertainty into Water Allocations in Kansas. Governors Water Conference, Manhattan, Kansas, (Poster).

Verhulst, G., **Roundy, J. K.** and Harris, Ted (2023, November). Identifying and Forecasting CyanoHABs in Marion Reservoir. Governors Water Conference, Manhattan, Kansas, (Poster).

Roundy, J. K., and Makhasana, P.*. (2023, September). Short Term Drought Prediction Based on Stable States Between the Land and the Atmosphere. HEPEX Workshop Forecasting across spatial scales and time horizons, SMHI, Norrköping, Sweden (Oral).

Roundy, J. K., Makhasana, P.* , Lawston-Parker, P., and Santanello, J.A. (2023, February). SMAP Insights into Land-Atmosphere Interactions and Short-Term Drought Prediction. SMAP Science Team Meeting, Pasadena, CA (Oral).

Roundy, J. K., Makhasana, P.* , and Santanello, J.A (2023, January). The Impact of Switching from AIRS v6 to v7 on Diagnosing the Land-Atmosphere Coupling from Remote Sensing. AMS Annual Meeting, Denver, CO (Poster).

Makhasana, P.* , **Roundy, J. K.**, Parker, P and Santanello, J.A (2023, January). Spatio-Temporal Soil Moisture Dry-down for Understanding Drought Mechanisms. AMS Annual Meeting, Denver, CO (Oral).

Roundy, J. K., Makhasana, P.* , Lawston-Parker, P., and Santanello, J.A. (2022, December). Short-term Prediction of Drought Evolution using SMAP. AGU Fall Meeting, Chicago, Illinois, (Poster).

Chapman, C.*, Rockel, R., **Roundy, J. K.** (2022, November). Incorporating Climate Uncertainty into Water Allocations in Kansas. Governors Water Conference, Manhattan, Kansas, (Poster).

Roundy, J. K., Makhasana, P.* , Lawston-Parker, P., and Santanello, J.A. (2022, June). Towards a Remote Sensing Based Global Prediction of Drought Evolution. Frontiers in Hydrology, San Juan, Porto Rico, (Lightning Talk).

Hosseini, A.*, **Roundy, J. K.**, Ludwig, R., and Harris, T. (2022, May). Physical Mixing Controls CyanoHABs in Hyper-Eutrophic Discontinuous Polymictic Systems. JASAM , Grands Rapid, Michigan (Poster).

Roundy, J. K., Arnold, E. and Miller, B. (2022, January). Improved Hydrological Modeling in the Black Hills of South Dakota from Airborne Snow Depth Retrievals. AMS Annual Meeting, Virtual (Oral).

Makhasana, P.* , **Roundy, J. K.**, Lawston-Parker, P., and Santanello, J.A. (2021, December). The Capability of SMAP for Understanding Drought Mechanisms. AGU Annual Meeting, (Oral).

Hillman, C.*, **Roundy, J. K.**, Hosseini, A*., Harris, T., and Kumar, S. (2021, December). Assimilation of Satellite Data for Predicting CyanoHABs in Kansas. AGU Annual Meeting, (Poster).

Hosseini, A.*, Morales, J., Kniola, K., Kessler, R., Baker, D, **Roundy, J. K.**, & Harris, T. (2021, December). Sensor-Based Detection of Deep Water Algal Blooms: A Case Study in Cross Reservoir, Kansas. KBS Ecology Seminar , Virtual (Oral).

Roundy, J. K., & Santanello, J. A. (2021, October). The Impact of Switching from AIRS v6 to v7 on Diagnosing the Land-Atmosphere Coupling. NASA Sounder Science Team Meeting, Virtual (Oral).

Hosseini, A.*, **Roundy, J. K.**, Ladwig, R., & Harris, T. (2021, October). The Effect of Water Column Stability on Biological Behaviors of Marion Reservoir in Kansas. GLEON Annual Meeting, Virtual (Poster).

Roundy, J. K., Zhang, Y.* (2021, January). Global Trends in Land-Atmosphere Coupling. AMS Annual Meeting, Virtual (Poster).

Roundy, J. K., Zhang, Y.* (2020, December). Improved Hydrological Modeling in the Black Hills of South Dakota from Airborne Snow Depth Retrievals. AGU Annual Meeting, Virtual (Poster).

Zhang, Y.*, **Roundy, J. K.** (2020, December). The impact of using G3D-UW cumulus scheme on NU-WRF soil moisture-precipitation feedback during a drought evolution in Central US. AGU Annual Meeting, Virtual (Poster).

Hosseini, A.*, **Roundy, J. K.**, & Harris, T. (2020, October). High-frequency temperature and dissolved oxygen monitoring of a discontinuous polymictic reservoir in the Midwestern USA. GLEON Annual Meeting, Virtual (Poster).

Zhang, Y.*, **Roundy, J. K.**, & Santanello, J. (2020, January). Evaluating the Influence of Resolution and Cumulus Parameterization at 4 km on Spatial Precipitation Patterns of NU-WRF in Eastern Kansas and Western Missouri. AMS Annual Meeting, Boston, MA (Poster).

Roundy, J. K., & Arnold, E. (2020, January). Airborne Snow Depth Retrieval for Improved Hydrological Modeling in the Black Hills of South Dakota. AMS Annual Meeting, Boston, MA (Oral).

Hosseini, A.*, **Roundy, J. K.**, & Brunsell, N. (2019, December). Understanding the Impact of Vegetation Dynamic in the Noah-MP Land Surface Model over C3/C4 Grasslands. AGU Annual Meeting, San Fransisco, CA (Poster).

Zhang, Y.*, **Roundy, J. K.**, & Santanello, J. (2019, January). A Case Study of the Impact of Land-Atmosphere Coupling on a Persistent Regional Drought in Northeastern Kansas and Northern Missouri. AMS Annual Meeting, Phoenix, AZ (Oral).

Crowl, M.*, & **Roundy, J. K.** (2019, January). Incorporating Climate Model Projections into the Development of IDF Estimates for the Kansas City Area. AMS Annual Meeting, Phoenix, AZ (Poster).

Hosseini, A.*, **Roundy, J. K.**, & Brunsell, N. (2019, January). The Impact of Vegetation Dynamics on Surface Fluxes in the Noah-MP Land Surface Model. AMS Annual Meeting, Phoenix, AZ (Poster).

Roundy, J. K., Ferguson, C. R. & Santanello, J. (2018, May). The Impact of Land-Atmosphere Coupling on the development of Flash Droughts. GEWEX 8th Open Science Meeting, Canmore, Alberta, Canada (Oral).

Roundy, J. K., Zhang, Y.* & Santanello, J. (2018, April). Impact of Spatio-Temporal Resolutions on Dynamical Downscaling of Precipitation Over CONUS. EGU General Assembly, Vienna, Austria (Oral).

Zhang, Y.*, **Roundy, J. K.,** & Santanello, J. (2018, January). Evaluation of precipitation from WRF models at multiple spatio-temporal resolutions in CONUS. AMS Annual Meeting, Austin, TX (Poster).

Roundy, J. K., Ferguson, C. R. & Santanello, J. (2018, January). Current trends in land-atmosphere coupling related to drought. AMS Annual Meeting, Austin, TX (Poster).

Roundy, J. K., & Roth, G.* (2017, January). Optimal drought forecasts from a multi-model framework. AMS Annual Meeting, Seattle, WA (Oral).

Roundy, J. K., & Santanello, J. (2016, December). Utility of Satellite Remote Sensing for Land-Atmosphere Coupling and Drought Metrics. AGU Fall Meeting, San Francisco, CA (Oral).

Johnson, F.* & **Roundy, J. K.** (2016, November). Seasonal Streamflow Predictions for Kansas that Utilize a Simple Large Scale Routing Scheme that Includes Reservoir Characteristics. Governors Water Conference, Topeka, Kansas (Poster).

Roundy, J. K., & Johnson, F.* (2016, September). A simple large-scale routing scheme for seasonal streamflow predictions that includes reservoir characteristics. GEWEX: Including Water Management in Large Scale Models, Gif-sur-Yvette, France (Oral).

Roundy, J. K., & Santanello, J. (2016, June). Impact of Dynamical Downscaling on Land Surface Model Forcings. HEPEX Workshop, Quebec City, Canada (Poster).

Roundy, J. K., & Santanello, J. A. (2016, January). Satellite remote sensing observations of land-atmosphere interactions for understanding drought mechanisms. AMS Annual Meeting, New Orleans, LA (Poster).

Roundy, J. K., Santanello, J. A., & Ferguson, C. R. (2015, December). Impact of dynamical downscaling on model representation of land-atmosphere coupling strength. AGU Annual Meeting, San Francisco, CA (Poster).

Roundy, J. K., & Santanello, J. A. (2015, October). Satellite remote sensing observations of land-atmosphere interactions for monitoring and understanding mechanisms of drought. NASA Sounder Science Team Meeting, Greenbelt, MD (Oral).

Roundy, J. K., & Santanello, J. A. (2015, April). Land-atmosphere coupling metrics from satellite remote sensing as a global drought-monitoring tool. EGU Annual Meeting, Vienna, Austria (Oral).

Roundy, J. K., & Santanello, J. A. (2015, January). The potential use of land-atmosphere coupling metrics as a global drought-monitoring tool. AMS Annual Meeting, Phoenix, AZ (Oral).

Roundy, J. K., Santanello, J. A., Koster, R., & Wood, E. F. (2014, December). The attribution of land-atmosphere interactions on the seasonal predictability of drought. AGU Fall Meeting, San Francisco, CA (Poster).

Roundy, J. K., Santanello, J. A., & Wood, E. F. (2014, July). The attribution of land-atmosphere interactions on the seasonal predictability of drought. 7th International Scientific Conference on the Global Water and Energy Cycle, The Hague, Netherlands (Poster).

Roundy, J. K., & Wood, E. F. (2014, February). The importance of land-atmosphere coupling for seasonal drought prediction. WMO-NOAA Seasonal to Subseasonal International Conference, College Park, MD (Oral).

Roundy, J. K., & Wood, E. F. (2014, January). The importance of land-atmosphere coupling for seasonal drought prediction. AMS Annual Meeting, Atlanta, GA (Poster).

Roundy, J. K., Ferguson, C. R., & Wood, E. F. (2013). Land-atmosphere coupling and seasonal forecast skill over the Great Plains and the Southeast United States. AMS Annual Meeting, Austin, TX (Oral).

Roundy, J. K., Yuan, X., & Wood, E. F. (2013). The optimal time and space scale for downscaling the CFSv2 forecast for seasonal hydrologic predictions. AGU Chapman Conference on Seasonal to Interannual Hydroclimate Forecasts and Water Management, Portland, OR (Oral).

Roundy, J. K., Ferguson, C. R., & Wood, E. F. (2012). The temporal variability of land-atmosphere coupling regimes in the Southeast United States. Poster, 4th WCRP International Conference on Reanalysis, Silver Spring, MD (Poster).

Roundy, J. K., Yuan, X., & Wood, E. F. (2012). Land surface model calibration and hydrologic forecasting over the Southeastern United States. HEPEX Workshop, Beijing, China (Oral).

Roundy, J. K., Chaney, N., & Wood, E. F. (2011). Assessment of large scale and regional scale models for application to a high resolution global land surface model. AGU Fall Meeting, San Francisco, CA (Oral).

Roundy, J. K., Ferguson, C. R., & Wood, E. F. (2011). Local Land-Atmosphere Coupling (LoCo): Forecast precipitation skill for different land-atmosphere coupling regimes in the Southeast United States. Poster, WCRP Open Science Conference, Denver, CO (Poster).

Roundy, J. K., Sheffield, J., Wood, E. F., Mo, K. C., & Dobur, J. (2011). Drought monitoring and forecasting in the Apalachicola-Chattahoochee-Flint River Basin in the Southeastern United States. AMS Annual Meeting, Seattle, WA (Oral).

Roundy, J. K., Bastidas, L. A., Goncalves, L. G., & Shuttleworth, W. J. (2008). Data- and parameter induced uncertainty estimation for Land Surface Models. Poster, AGU Fall Meeting, San Francisco, CA (Poster).

SERVICE RECORD

Committees and Panels

Organizing Committee, GEWEX PAN-GLASS Conference, Stuttgart, Germany (2026).

The Heartland Environmental Alliance for Resilience & Transformation Steering Committee (2024 – present).
Appointed Panel Liaison between GEWEX GLASS and GHP, (2020 - Present).
GEWEX Global Land/Atmosphere System Study (GLASS) Panel, Member, (2016-Present).
Missouri River Stage Frequency Technical Review Group, Army Corps of Engineers (2023-Present).
NASA Review Panel (2025).
APWA 5600 Technical Work Group (2023).
NSF Grant Review (2022, 2023).
NASA Grant Review Panel (Feb and Jun 2021).
Hydrology Committee, American Meteorological Society, Member. (2012 - 2021).
Program Chair 33rd Conference on Hydrology, AMS Annual Meeting, Phoenix, Arizona, (2018-2019).
Organizing Committee GEWEX 8th International Open Science Meeting, Canmore, Canada, May 2018.
NASA Grant Review Panel (2018).
Grant Reviewer, U.S. Department of Energy, (2017).
Program Chair 32nd Conference on Hydrology, AMS Annual Meeting, Austin Texas, (2017-2018).
NASA Grant Review Panel (2016).
Advisory Panel for GEWEX North American Regional Hydroclimate Project, Member. (2016-2018).
Organizing Committee GEWEX 7th International Conference The Hague, Netherlands (2014).

Conference Sessions

Drought Analysis and Prediction, 40th Conference on Hydrology, AMS Annual Meeting, Houston, TX, Session Co-Chair. (January 2026).
Land-Atmosphere Interactions in a Changing Climate, 40th Conference on Hydrology, AMS Annual Meeting, Houston, TX, Session Co-Chair. (January 2026).
Understanding and Quantifying the Human Impacts on the Water Cycle, AGU Annual Meeting, New Orleans, LA, Session Co-Chair. (December 2025).
Hydrologic Extremes: Understanding Drivers, Risks, and Uncertainty, AGU Annual Meeting, New Orleans, LA, Session Co-Chair. (December 2025).
Drought Analysis and Prediction, 39th Conference on Hydrology, AMS Annual Meeting, New Orleans, LA, Session Co-Chair. (January 2025).
Land-Atmosphere Interactions in a Changing Climate, 39th Conference on Hydrology, AMS Annual Meeting, New Orleans, LA, Session Co-Chair. (January 2025).
Drought Analysis and Prediction, 38th Conference on Hydrology, AMS Annual Meeting, Baltimore, MD, Session Co-Chair. (January 2024).
Drought Analysis and Prediction, 37th Conference on Hydrology, AMS Annual Meeting, Denver, CO, Session Co-Chair. (January 2023).
Drought Analysis and Prediction, 36th Conference on Hydrology, AMS Annual Meeting, Virtual, Session Co-Chair. (January 2022).
Drought Analysis and Prediction, 35th Conference on Hydrology, AMS Annual Meeting, Virtual, Session Co-Chair. (January 2021).
Drought Analysis and Prediction, 34th Conference on Hydrology, AMS Annual Meeting, Boston, MA, Session Co-Chair. (January 2020).
Precipitation processes and observations for atmospheric, land surface, and hydrological modeling, 33rd Conference on Hydrology, AMS Annual Meeting, Phoenix, AZ, Session Co-Chair. (January 2019).
Ensemble hydro-meteorological forecasting techniques and predictive uncertainty estimation, EGU General Assembly, Session Co-Chair. (April 2018).
Drought Analysis and Prediction, 32nd Conference on Hydrology, AMS Annual Meeting, Austin, TX, Session Co-Chair. (January 2018).
Predictability and predictive uncertainty estimation in hydrologic forecasting, EGU General Assembly, Session Co-Chair. (April 2017).

Drought Analysis and Prediction, 31st Conference on Hydrology, AMS Annual Meeting, Seattle, WA, Session Chair. (January 2017).

Predictability and predictive uncertainty estimation in hydrologic forecasting, EGU General Assembly, Session Co-Chair. (April 2016).

Drought Analysis and Prediction, 30th Conference on Hydrology, AMS Annual Meeting, New Orleans, Session Chair. (January 2016).

Journal Article Reviewer

Journal of Climate, Journal of Hydrometeorology, Journal of Geophysical Research-Atmospheres,, Water Resources Research, Journal of Hydrology, Climate Dynamics, Scientific Reports-Nature, Weather and Forecasting, Earth System Dynamics, Remote Sensing, Environmental Modeling & Software, Journal of Meteorological Research, Geoscientific Model Development, Journal of Environmental Management, Water, Journal of Hydrologic Engineering, Hydrological Processes, Journal of Advances in Modeling Earth Systems, Geophysical Research Letters, Hydrology and Earth System Science Discussions, Reviews of Geophysics, Journal of Arid Environments, Journal of Geophysical Research, Advances in Water Resources, Journal of Applied Meteorology and Climatology, Agriculture and Forest Meteorology, NPJ-Climate and Atmospheric Science, Journal of Geophysical Research Letters, International Journal of Climatology, Artificial Intelligence for the Earth Systems.

Journal Editor

Guest Editor International Journal of Climatology (2023-2024).

University/Department Service

Department Curriculum Committee Chair (2025-Present).

School of Engineering Curriculum Committee (2025-Present).

Department ABET Committee (2016-Present).

University Core Curriculum Committee (2022-2024).

Department Curriculum Committee (2023-2025).

EWRE Tenure Track Search Committee Chair (2023-2024).

EWEE Teaching Professor Committee (2022-2023).

Faculty Senate Research Committee (2021-2024).

EWRE Qualification Exam Organizer (2020, 2021, 2024).

EWRE Seminar Organizer (Spring 2021).

Search Committee for faculty position in Environmental Engineering. Member. Civil, Environmental & Architectural Engineering. (Fall 2017 - Spring 2018).

Search Committee for faculty position in Water Resources. Member. Civil, Environmental & Architectural Engineering. (Fall 2017 - Spring 2018).

Search Committee for faculty position in Atmospheric Science. Member. (Fall 2017 - Spring 2018).

Facilitated the implementation of the Masters Accelerator Program. (2017-2018).

Fundamentals of Engineering Exam Review Series. Lecturer. (2016 - 2021).

Search Committee for faculty position in Atmospheric Science. Member. (Fall 2015 - Spring 2016).

PROFESSIONAL ORGANIZATIONS

American Geophysical Union, (2008 - Present)

American Meteorological Society, (2008 - Present)

Hydrologic Ensemble Prediction Experiment, (2012 - Present)

European Geophysical Union, (2014 - Present)

American Society of Civil Engineers, (Fall 2015 - Present)

AWARDS

Chair's Council Associate Professor (2025).

Chair's Council Assistant Professor (2020).

AMS STAC Outstanding Service Award (2020).

AMS Hydrology Chair Appreciation (2018).

Winner of the GEWEX and WCRP ECR Video Competition (2016).