Joshua K. Roundy

Assistant Professor
Department of Civil, Environmental, and Architectural Engineering
University of Kansas
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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

Assistant Professor, Department of Civil, Environmental, and Architectural Engineering, University of Kansas, Lawrence, KS, 2015 - Present

Research

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

TEACHING EXPERIENCE

List of Courses Taught

CE 455 Hydrology (Fall 2015) – Enrolled: 15, Average Student Evaluation: 4.36/5.0
CE 455 Hydrology (Spring 2016) – Enrolled: 38, Average Student Evaluation: 4.75/5.0
CE 751 Physical Hydrology (Fall 2016) – Enrolled: 11, Average Student Evaluation: 4.45/5.0
CE 895 Data Analysis (Spring 2017) – Enrolled: 3, Average Student Evaluation: 5.0/5.0
CE 455 Hydrology (Spring 2017) – Enrolled: 56, Average Student Evaluation: 4.58/5.0

Advising

Undergraduate Student Advising (7)
Undergraduate Research (5)
Masters (2)
Doctoral (1)

JOURNAL ARTICLES (16)

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

SCHOLARLY PRESENTATIONS (28)

Invited

Roundy, J. K., & Santanello, J. (2017, December). The Impact of Land-Atmosphere Coupling on the 2017 Northern Great Plains Drought. AGU Fall Meeting, San Francisco, CA (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.

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

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

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

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

Other

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).

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 Fransisco, 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 parameterinduced uncertainty estimation for Land Surface Models. Poster, AGU Fall Meeting, San Francisco, CA (Oral).

SERVICE RECORD

Committees

Program Chair 32 Conference on Hydrology, AMS Annual Meeting, Austin Texas, (2017-2018)
Advisory Panel for GEWEX North American Regional Hydroclimate Project, Member. (2016-Present)
GEWEX Global Land/Atmosphere System Study (GLASS) Panel, Member. (2016-Present)
Organizing Committee GEWEX 7th International Conference The Hague, Netherlands (2014).
Hydrology Committee, American Meteorological Society, Member. (2012 - Present)
Student Health Plan Advisory Council Princeton University (2011-2014).

Conference Sessions

Drought Analysis and Prediction, 32th 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 2018)
Drought Analysis and Prediction, 31th 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 2017)
Drought Analysis and Prediction, 30th Conference on Hydrology, AMS Annual Meeting, New Orleans, Session Chair. (January 2016)
Predictability and predictive uncertainty estimation in hydrologic forecasting, EGU General Assembly, Session Co-Chair. (April 2016)

Journal Article Reviewer

Earth System Dynamics, Remote Sensing, Environmental Modelling & Software, Journal of Meteorological Research, Environmental Modelling & Software, Geoscientific Model Development, Journal of Environmental Management, Journal of Geophysical Research-Atmospheres, Journal of Hydrology, Journal of Hydrometeorology, Water, Water Resources Research, Weather and Forecasting

PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers, (Fall 2015 - Present)
Hydrologic Ensemble Prediction Experiment, (2012 - Present)
American Geophysical Union, (2008 - Present)
American Meteorological Society, (2008 - Present)

AWARDS

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

EXTERNAL FUNDING

Proposals under Review

Roundy, J. (Principal) & Jacobs, Tom (Co-Principal). *Utilizing seasonal forecasts to develop a community that is mindful of climate uncertainty and more resilient to extreme events.* NOAA-SARP, **$173,698**, Submitted August 14, 2017 (July 1, 2018 - June 30, 2019).

Brunsell, Nathaniel (Principal), **Roundy, J. (Co-Principal)**, Van Vleck, Erik (Co-Principal), & Barlage, Michael (Co-Principal). *Examining of the role of model-data uncertainty in diagnosing land-atmosphere coupling.* NASA **$593,091**, Submitted July 23, 2017 (January 1, 2018 - December 31, 2020).