

## **Puneet Srivastava, Ph.D., P.E.**

Director, Water Resources Center  
Auburn University, Auburn, Alabama  
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### **Professional Experience**

Auburn University, Water Resources Center  
Director (July 2015 –)

Auburn University, Biosystems Engineering Department  
Butler-Cunningham Eminent Scholar (March 2015 –)  
Professor of Ecological Engineering (Fall 2013 –)  
Graduate Program Coordinator (2011 – 2015)  
Associate Professor of Ecological Engineering (2009 – 2013)  
Assistant Professor of Ecological Engineering (2004 – 2009)

National Center for Atmospheric Research, Research Applications Laboratory  
Visiting Scientist (June 2012 – November 2012)

Academy of Natural Sciences of Philadelphia, Patrick Center for Environmental Research  
Assistant Curator (2001 – 2004)

Arkansas Department of Environmental Quality  
Senior Engineer (1999 – 2001)

Southwest Florida Research and Extension Center, University of Florida  
Water Quality Specialist (1997 – 1998)

### **Education**

Ph.D. (1999) Agricultural and Biological Engineering (Minor: Computer Science and Engineering), Pennsylvania State University, University Park, PA

M.S. (1995) Biological and Agricultural Engineering, Univ. of Arkansas, Fayetteville, AR

B.S. (1992) Agricultural Engineering, University of Allahabad, Allahabad, India

### **Honors, Awards and Recognitions (Selected)**

2019 Fellow, American Society of Agricultural and Biological Engineers

2019 Fellow, Alabama Academy of Science

2019 Inducted into the Auburn University College of Agriculture Academy of Fellows

2019 Director's Grantsmanship Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.

2018 Dean's Research Award for Senior Faculty. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.

- 2017 Superior Paper Award. Journal articles published by the American Society of Agricultural and Biological Engineers (ASABE) in "Transactions of the ASABE" and "Applied Engineering in Agriculture" are eligible for paper awards. Each ASABE division selects up to 5% of the papers for an award. Srivastava's paper was published in the Soil & Water Division.
- 2017 Director's Grantsmanship Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.
- 2017 Gary Brown ePortfolio Faculty Cohort Award
- 2016 Director's Grantsmanship Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.
- 2015 Appointed Director, Water Resources Center, Auburn University
- 2015 Appointed Butler-Cunningham Eminent Scholar, College of Agriculture, Auburn University, Auburn, AL.
- 2014 Distinguished Engineer Award, Alabama Section of the American Society of Agricultural and Biological Engineers (ASABE).
- 2013 Director's Grantsmanship Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.
- 2013 Superior Paper Award. Journal articles published by the American Society of Agricultural and Biological Engineers (ASABE) in "Transactions of the ASABE" and "Applied Engineering in Agriculture" are eligible for paper awards. Each ASABE division selects up to 5% of the papers for an award. Srivastava's paper was published in the Soil & Water Division.
- 2012 Director's Grantsmanship Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.
- 2010 Director's Grantsmanship Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.
- 2008 Director's Junior Faculty Research Award. Awarded by the Dean of College of Agriculture and Director of Alabama Agricultural Experiment Station.
- 2006 – 2013 Associate Editor. Soil and Water Division Associate Editor for the journals Transactions of the American Society of Agricultural and Biological Engineers (ASABE) and Applied Engineering in Agriculture.
- 2002-2004 Scientific and Technical Advisory Committee (STAC), Chesapeake Bay Program
- 2002 – 2003 Analytical Tools Panel, Chesapeake Research Consortium
- 1999 Sigma Xi, Scientific Research Society
- 1999 Gamma Sigma Delta, The Honor Society of Agriculture

1995            Alpha Epsilon, Agricultural Engineering Honor Society

### **Research Interest**

Climate variability (drought) and change impacts on water resources and agriculture; surface and groundwater quantity and quality; monitoring and modeling of hydrologic and nonpoint pollutant (nutrients and sediment) transport and transformation processes from point to regional scales; and application of geographic information and artificial neural network systems for water resources management

### **Research Funding Support (Total > \$27 million)**

Funding support for numerous research projects received from NSF, USDA-AFRI, USDA-NRCS-CIG, USDA-NIFA, USDA Higher Education Challenge grants program, USEPA-STAR, NOAA, USGS, NIDIS, Mississippi-Alabama Sea Grant Consortium (MASGC), State of Pennsylvania, State of Alabama, Alabama Agricultural Experiment Station Foundation, William Penn Foundation, and Academy of Natural Sciences of Philadelphia.

### **Current Funding Support**

- 2019 – 2024    NRT: Addressing resiliency to climate-related hazards and disasters through data-informed decision-making (\$2,998,770 funded by NSF-NRT; Srivastava, Co-PI)
- 2018 – 2021    Elucidating Colloidal-Facilitated Phosphorus Migration in Soils through X-ray Computed Tomography and Hydrus Modeling (\$500,000 funded by USDA-AFRI; Lamba PI; Srivastava Co-PI)
- 2017 – 2022    Agricultural Water Security through Sustainable Use of the Floridan Aquifer: An Integrated Assessment of Economic and Environmental Impacts (\$5,000,000 funded by USDA-NIFA; Srivastava Auburn PI)
- 2017 – 2020    Increasing adoption of climate- and water-smart irrigation practices among Tennessee Valley Farmers in Alabama and Tennessee (\$946,000 funded by USDA-NRCS-CIG; Ortiz PI, Srivastava Co-PI)
- 2018 – 2023    Environmental Evaluation and Watershed Assessment for Irrigation Expansion and Resource Conservation in Alabama (\$1,500,000 funded by USDA-NRCS; Brantley PI, Srivastava Co-PI)
- 2018 – 2020    A Prototype Framework of Climate Services for Decision Making (\$150,000 funded by AU PAIR; Tian PI, Srivastava Co-PI)

### **Recently Completed Project**

- 2016 – 2018    Evaluating practical approaches for farm bacterial testing in support of the FSMA Produce Safety Rules (\$50,000 funded by AAES AgR-SEED; Srivastava PI)
- 2016 – 2018    Evaluation of Agricultural Best Management Practices on Water Quality in the Southeast US (\$50,000 funded by AAES AgR-SEED; Lamba PI, Srivastava Co-PI)

- 2016 – 2018 Fingerprinting Sources of Suspended and Stream Bed Sediment in the Southeast US (\$80,000 Funded by AU-IGP; Lamba PI, Srivastava Co-PI)
- 2016 – 2018 Climate change impacts on water resources of the southeastern United States (\$50,000 funded by AAES; Srivastava PI)
- 2017 – 2018 Forecasting Continental Inundation Mapping with the Modified HAND Method (\$40,000 funded by NOAA-COMET; Lamba PI, Srivastava Co-PI)
- 2017 – 2018 Strategic Planning and Research in Support of NIDIS Drought Early Warning System for the Southeast (\$130,000 funded by NIDIS; Srivastava PI)
- 2016 – 2017 Expanding Drought Early Warning System in the Southeast (\$100,000 funded by NIDIS; Srivastava PI)
- 2013 – 2016 Managing Drought in the Apalachicola-Chattahoochee-Flint (ACF) River Basin through the Development of Improved Drought Indicators and Policy Alternatives (\$285,000 funded by NOAA-SARP; Srivastava PI)
- 2012 – 2016 Transforming Biology-Based Engineering Education Using a Hybrid Pedagogical Approach (\$142,760 funded by USDA-HEC; Srivastava PI)
- 2012 – 2016 Forecasting Stream flows in the Apalachicola-Chattahoochee-Flint River Basin Using Ensemble Streamflow Predictions (\$364,000 funded by NIDIS; Srivastava PI)
- 2010 – 2016 SECC-RISA: Science and partnerships for adaptation and resilience to climate change and climate variability (\$4 million funded by NOAA; Jones PI, Srivastava Co-PI)
- 2010 – 2015 Modeling Climate and Land Use Change Impact on Hydrology and Water Quality Characteristics across an Urban-Rural Gradient (\$105,000 funded by Center for Forest Sustainability; Srivastava PI)
- 2010 – 2013 Reducing Drought Risks in the Southeast USA: Quantification of Drought Information Value, Development of Drought Indices, and Communication of Drought Information (\$275,000 funded by NOAA; Srivastava PI)
- 2010 – 2013 Economic, Engineering and Extension Applications of Improved Climate Forecasting (\$195,000 funded by USDA-NIFA; Srivastava PI)
- 2010 – 2013 Identifying Flood Generating Areas in 8-Mile Creek Watershed through a Novel Approach (\$150,000 funded by MS-AL Sea Grant Program; Kalin PI, Srivastava Co-PI)
- 2010 – 2013 Next generation biological engineering research through renovation of laboratories at Auburn University (\$4.6 million funded by NSF: Taylor PI, Srivastava Co-PI)

## **Publications**

(\* denotes graduate students and/or post-docs)

*Provisional Patent (2); Book Chapters (7); Peer-reviewed Publications (81 published + 10 in review); Non-refereed Publications with Presentation at Professional Meetings (22); Published Abstract with Presentation at Professional Meetings (82); Research Reports (21); Papers and Posters Presented at Professional Meetings without Published Abstract or Paper (112); Invited Seminars (69); Outreach Publications (9).*

## **Patents and Inventions**

1. **Srivastava, P.** 2009. Method for the Optimal Management and Utilization of Industrial by-products. U.S. Provisional Patent.
2. Sharma\*, S., S. Isik, **P. Srivastava**, and L. Kalin. 2011. Deriving Spatially-Distributed Precipitation Data Using the Artificial Neural Network and Multi-Linear Regression Models. U.S. Provisional Patent.

## **Book Chapters**

1. Mirhosseini\*, G. and P. Srivastava. 2013. How Climate Change Could Affect Alabama's Rainfall - And Why It Matters. Auburn Speaks 2013: On Water.
2. Sharma\*, S., P. Srivastava, and L. Kalin. 2013. Using Seasonal to Inter-Annual Climate Variability for Point Source Discharge Permitting in a Complex River System. Auburn Speaks 2013: On Water.
3. Sharda\*, V. and P. Srivastava. 2013. Forecasting: Climate Variability and Drought in the Southeast. Auburn Speaks 2013: On Water.
4. Noori\*, N., L. Kalin, C. Leblue, and P. Srivastava. 2013. The Role of Human Activities on Flooding: Does It Matter Where We Develop? Auburn Speaks 2013: On Water.
5. Niraula\*, R., L. Kalin, P. Srivastava, and C. Anderson. 2013. Finding the Source of Sediments and Nutrients in the Saughatchee Creek Watershed. Auburn Speaks 2013: On Water.
6. Srivastava, P. and L. Kalin. 2009. Geographic Information System-Based Watershed Modeling Systems. Biosystems Engineering (Edited by A. Nag). McGraw Hill Publishers. Invited.
7. Kalin, L. and P. Srivastava. 2009. Soil and Water Conservation. Biosystems Engineering (Edited by A. Nag). McGraw Hill Publishers. Invited.

## **Peer-Reviewed Articles**

1. Karki\*, R., P. Srivastava, D.D. Bosch, L. Kalin, J. Lamba, and T.C. Strickland. 2020. Multi-variable sensitivity analysis, calibration, and validation of a field-scale SWAT model: Building stakeholder trust in hydrologic/water quality modeling. Transactions of the ASABE (In press).

2. Karki\*, R., P. Srivastava, and T. Veith. 2020. Application of the Soil and Water Assessment Tool (SWAT) at the Field-Scale: Categorizing Methods and Review of Applications. *Transactions of the ASABE* (In press).
3. Sangha, L., J. Lamba, H. Kumar, P. Srivastava, M. Dougherty, and R. Prasad. 2020. An innovative approach to rainwater harvesting for irrigation based on ENSO forecasts. *Journal of Soil and Water Conservation* (In press).
4. Anandhi, A., K. Douglas-Mankin, P. Srivastava, R. Aiken, G. Senay, R. L. Leung and I. Chaubey. 2020. DPSIR-ESA Vulnerability Assessment (DEVA) Framework: Synthesis, Foundational Overview, and Expert Case Studies. *Transactions of the ASABE* (In Press).
5. Arora, P., J. Lamba, P. Srivastava, and L. Kalin. 2019. Modeling Effectiveness of Broiler Litter Application Method for Reducing Phosphorus and Nitrogen Losses. *Hydrology Research*, 50 (4): 1047-1061.
6. Mussie, M. S. Sen, and P. Srivastava. 2019. Comparison and Evaluation of Gridded Precipitation Datasets for Streamflow Simulation in Data Scarce Watersheds of Ethiopia. *Journal of Hydrology* <https://doi.org/10.1016/j.jhydrol.2019.124168>.
7. Lamba, J., P. Srivastava, T.R. Way, and K. Malhotra. 2019. Effect of Broiler Litter Application Method on Metal Runoff from Pastures. *Journal of Environmental Quality*, 48 (6): 1856-1862.
8. Mitra\*, S., S. Singh\*, and P. Srivastava. 2019. Sensitivity of Groundwater Components to Irrigation Withdrawals during Droughts on Agricultural Intensive Karst Aquifer in the Apalachicola-Chattahoochee Flint River Basin. *Journal of Hydrologic Engineering*, 24 (3), 05018032.
9. Malhotra, K., J. Lamba, P. Srivastava, and S. Shepherd. 2018. Fingerprinting Suspended Sediment Sources in an Urbanized Watershed. *Water*, 10, 1573; doi:10.3390/w10111573.
10. Singh\*, S., A. Abebe, and P. Srivastava. 2018. Evaluation of Nonparametric and Parametric Statistical Procedures for Modeling and Prediction of Cluster-Correlated Hydroclimatic Data. *Water Resources Research*, 54(9): 6948-6964.
11. Mitra\*, S., P. Srivastava, and J. Lamba. 2018. Probabilistic Assessment of Projected Climatological Drought Characteristics over the Southeast USA. *Climatic Change*, 147(3-4): 601-615.
12. Medina, H., D. Tian, P. Srivastava, A. Pelosi, and G. Chirico. 2018. Medium-range reference evapotranspiration forecasts for the contiguous United States based on multi-model numerical weather predictions. *Journal of Hydrology*, 562: 502-517.
13. McGehee\*, R. and P. Srivastava. 2018. Benchmarking reliable erosion indices from quarter-hour station data for climate studies in the southeastern United States. *Journal of Soil and Water Conservation* 73(4): 363-376.
14. Han\*, X., J. Liu, S. Mitra\*, X. Li, P. Srivastava, S. Guzman\*, and X. Chen. 2018. Selection of Optimal Scales for Soil Depth Prediction on Headwater Hillslopes: A Modeling Approach. *CATENA*, 163: 257-275.
15. Duhan, D., A. Pandey, and P. Srivastava. 2018. Rainfall variability and its association with El Niño Southern Oscillation in Tons River Basin, India. *Meteorology and Atmospheric Physics*, 130 (4), 405-425.

16. Lamba, J., P. Srivastava, S. Mitra\*, and T. Way. 2018. Using soil phosphorus measurements to assess the effectiveness of subsurface-band application of broiler litter in reducing phosphorus leaching. *Transactions of the ASABE* 61(1): 133-138.
17. Mitra\*, S. and P. Srivastava. 2017. Spatial and temporal variability of droughts in the Southeast United States. *Natural Hazards*, 86(3): 1007-1038.
18. Mishra\*, N., P. Srivastava, and S. Singh. 2017. What do climate change projections say about future droughts in Alabama and Georgia? *Transactions of the ASABE* 60(4): 1139-1151.
19. Singh\*, S., P. Srivastava, S. Mitra\*, and A. Abebe. 2017. Evaluation of Water-Use Policies for Baseflow Recovery during Droughts in an Agricultural Intensive Karst Watershed: Case study of the Lower Apalachicola-Chattahoochee-Flint River Basin, Southeastern USA. *Hydrological Processes*, 31(21): 3628-3644.
20. Singh\*, S., P. Srivastava, A. Abebe, and S. Mitra\*. 2016. Climate Variability and Irrigation Impacts on Streamflows in a Karst Watershed- A Systematic Evaluation. *J. of Hydrology: Regional Studies* *J. of Hydrology: Regional Studies*, 8: 274-286.
21. Sharma\*, S., P. Srivastava, X. Fang, and L. Kalin. 2016. Hydrologic Simulation Approach for El Niño Southern Oscillation (ENSO)-Affected Watershed with Limited Rain Gauge Stations. *Hydrological Sciences Journal*, 61(6): 991-1000.
22. Sharda\*, V. and P. Srivastava. 2016. Value of ENSO-forecasted drought information for the management of small to mid-size communities. *Transactions of the ASABE*, 59(6): 1733-1744.
23. Chaubey, I., D.D. Bosch, R. Munoz-Carpena, R. Daren Harmel, K. Douglas-Mankin, A.P. Nejadhashemi, P. Srivastava, and A. Shirmohammadi. 2016. Climate change: A call for adaptation and mitigation strategies. *Transactions of the ASABE*, 59(6): 1709-1713.
24. Mirhosseini\*, G. and P. Srivastava. 2016. Effect of Irrigation and Climate Variability on Water Quality of Coastal Watersheds - A Case Study in Alabama. *J. Irrig. Drain Eng.*, 2016, 142(2): 05015010.
25. Kang, M.S., P. Srivastava, J.H. Song, J. Park, Y. Her, S.M. Kim, and I. Song. 2016. Development of a component-based modeling framework for agricultural water-resource management. *Water* 2016, 8(8), 351; doi:10.3390/w8080351.
26. Mitra\*, S., P. Srivastava, and S. Singh\*. 2016. Effect of irrigation pumpage during drought on karst aquifer systems in highly agricultural watersheds: example of the Apalachicola-Chattahoochee-Flint river basin, southeastern USA. *Hydrogeology Journal*, 24(6): 1565-1582.
27. Noori, N., L. Kalin, S. Sen\*, P. Srivastava, C. Lebleu. 2016. Identifying Areas Sensitive to Land Use/Land Cover Change for Downstream Flooding in a Coastal Alabama Watershed. *Regional Environmental Change*, 2016, DOI 10.1007/s10113-016-0931-5.
28. Elias, E., H. Rodriguez, P. Srivastava, M. Dougherty, D. James, and R. Smith. 2016. Impacts of Forest to Urban Land Conversion and ENSO Phase on Water Quality of a Public Water Supply Reservoir. *Forests* 2016, 7, 29; doi:10.3390/f7020029.
29. Sharma\*, S. and P. Srivastava. 2016. Teleconnection of Instream Total Organic Carbon Loads with El Niño Southern Oscillation (ENSO), North Atlantic Oscillation (NAO) and Pacific Decadal Oscillation (PDO). *Transactions of the ASABE*. 59(1): 81-95. (doi: 10.13031/trans.59.10980).

30. Singh\*, S., P. Srivastava, A. Abebe, and S. Mitra. 2015. Baseflow response to climate variability induced droughts in the Apalachicola-Chattahoochee-Flint River Basin, U.S.A. *Journal of Hydrology*, 528: 550-561.
31. Mirhosseini\*, G., P. Srivastava, and A. Sharifi. 2015. Developing Probability-Based IDF Curves Using Kernel Density Estimator. *J. Hydrol. Eng.*, 10.1061/(ASCE)HE.1943-5584.0001160, 04015002.
32. Sharma\*, S., P. Srivastava, L. Kalin, X. Fang, and E. Elias. 2015. Performance Comparison of Adoptive Neuro Fuzzy Inference System (ANFIS) with Loading Simulation Program C++ (LSPC) Model for Streamflow Simulation in El Niño Southern Oscillation (ENSO) Affected Watershed. *Expert Systems with Applications*, 42(4): 2213-2223.
33. Singh\*, H.V., L. Kalin, A. Morrison, P. Srivastava, G. Lockaby, and S. Pan. 2015. Post-Validation of SWAT Model in a Coastal Watershed for Predicting Land Use/Cover Change Impacts. *Hydrology Research*, 46(6): 837-853.
34. Lamba\*, J., T.R. Way, P. Srivastava, and D.B. Watts. 2015. A Method for Subsurface-Banding Poultry Litter in Plots Not Accessible with Conventional Field Equipment. *Applied Engineering in Agriculture*. 31(4): 555-558.
35. Sharma\*, S., P. Srivastava, X. Fang, L. Kalin. 2015. Long-Range Hydrologic Forecasting in El Niño Southern Oscillation-Affected Coastal Watersheds: Comparison of Climate Model and Weather Generator Approach. *Journal of Hydrologic Engg.*, 20(12), 10.1061/(ASCE)HE.1943-5584.0001198.
36. Sharma\*, S., P. Srivastava, X. Fang, and L. Kalin. 2014. Total Organic Carbon Load Simulation with El Niño Southern Oscillation Using Hybrid and Fuzzy Logic Approaches. *Transactions of the ASABE*, 57(4): 1071-1085.
37. Mitra\*, S., P. Srivastava, S. Singh, and D. Yates. 2014. Effect of ENSO-induced Climate Variability on Groundwater Levels in the Lower Apalachicola-Chattahoochee-Flint River Basin. *Transactions of the ASABE*, 57(5): 1393-1403.
38. Mirhosseini\*, G., P. Srivastava, and X. Fang. 2014. Developing Rainfall Intensity-Duration-Frequency (IDF) Curves for Alabama under Future Climate Scenarios using Artificial Neural Network (ANN). *J. Hydrol. Eng.*, 19(11), 04014022.
39. Elias, E., D. Laband, M. Dougherty, G. Lockaby, P. Srivastava, and H. Rodriguez. 2014. The public water supply protection value of forests: A watershed-scale ecosystem services analysis based upon total organic carbon. *Open Journal of Ecology*, 4(09): 517-531. doi: 10.4236/oje.2014.49042.
40. Lamba\*, J., P. Srivastava, T. Way, S. Sen\*, C. W. Wood, and K. Yoo. 2013. Nutrient Loss in Leachate and Surface Runoff from Surface-Broadcast and Subsurface-Banded Broiler Litter. *J. Environ. Qual.* 42:1574-1582.
41. Niraula\*, R., L. Kalin, P. Srivastava, and C. Anderson. 2013. Identifying Critical Source Areas of Nonpoint Source Pollution with SWAT and GWLF. *Ecological Modeling* 268:123-133.
42. Bolson, J., C. Martinez, N. Breuer, P. Srivastava, and P. Knox. 2013. Climate information use among southeast US water managers: beyond barriers and toward opportunities. *Regional Environmental Change* 13 (Suppl. 1): 141-151.



43. Mirhosseini\*, G., P. Srivastava, and L. Stefanova. 2013. The impact of climate change on rainfall Intensity–Duration–Frequency (IDF) curves in Alabama. *Regional Environmental Change* 13 (Suppl. 1): S25-S33.
44. Sharda\*, V., P. Srivastava, L. Kalin, K. Ingram, and M. Chelliah. 2013. Development of Community Water Deficit Index: Drought-Forecasting Tool for Small- to Mid-Size Communities of the Southeastern United States. *Journal of Hydrologic Engineering*, 18(7): 846–858.
45. Isik, S., L. Kalin, J.E. Schoonover, P. Srivastava, and B.G. Lockaby 2013. Modeling effects of changing land use/cover on daily streamflow: An Artificial Neural Network and curve number based hybrid approach, *Journal of Hydrology*, 485: 103-112.
46. Elias\*, E., M. Dougherty, P. Srivastava, and D. Laband. 2013. The impact of forest to urban land conversion on streamflow, total nitrogen, total phosphorus, and total organic carbon inputs to the Converse reservoir, Southern Alabama, USA. *Urban Ecosystems* 16:79-107.
47. Sharma\*, S., P. Srivastava, X. Fang, and L. Kalin. 2012. Incorporating Climate Variability for Point Source Discharge Permitting in a Complex River System. *Transactions of the ASABE*, 55(6): 2213 – 2228.
48. Lamba\*, J., T. Way, P. Srivastava, S. Sen\*, C.W. Wood, and K. Yoo. 2012. Surface Transport of Nutrients from Surface-Broadcast and Subsurface-Banded Broiler Litter. *Transactions of the ASABE* 55(3): 995-1002.
49. Sen\*, S., P. Srivastava, P.A. Vadas, and L. Kalin. 2012. Watershed-level Comparison of Predictability and Sensitivity of Two Phosphorus Models. *Journal of Environmental Quality*, 41:1642-1652.
50. Sharma\*, S., S. Isik, P. Srivastava, and L. Kalin. 2012. Deriving Spatially-Distributed Precipitation Data Using Artificial Neural Network and Multi-Linear Regression Models. *J. Hydrol. Eng.*, 18(2), 194–205.
51. Sharda\*, V., P. Srivastava, K. Ingram, M. Chelliah, and L. Kalin. 2012. Quantification of El Niño Southern Oscillation (ENSO) Impact on Precipitation and Stream flows for Improved Management of Water Resources in Alabama. *Journal of Soil and Water Conservation*, 67(3): 158-172.
52. Niraula\*, R., L. Kalin, R. Wang\*, P. Srivastava. 2012. Determining Nutrient and Sediment Critical Source Areas with SWAT Model: Effect of Lumped Calibration. *Transactions of the ASABE*, 55(1): 1-11.
53. Sen\*, S., P. Srivastava, T.P. Clement, J.H. Dane, and H. Meng. 2011. Simulating pasture hillslope hydrologic response using HIRO2 model. *Journal of Soil and Water Conservation*, 66(6):411-422.
54. Way, T., J. Lamba\*, and P. Srivastava. 2011. A method for installing zero-tension pan and wick lysimeters in soil. *Applied Engineering in Agriculture*, 27(5): 747-755.
55. Mondal\*, P., P. Srivastava, L. Kalin, and S.N. Panda. 2011. Ecologically-sustainable surface water withdrawal for cropland irrigation through incorporation of climate variability. *J. Soil and Water Conservation* 66(4):221-232; doi:10.2489/jswc.66.4.221.
56. Singh\*, H.V., L. Kalin, and P. Srivastava. 2011. Effect of soil data resolution on identification of critical source areas of sediment. *Journal of Hydrologic Engineering* doi:10.1061/(ASCE)HE.1943-5584.0000318.

57. Campbell, C., J. Fulton, T. McDonald, W. Wood, W. Zech, and P. Srivastava. 2010. Spinner-disc technology to enhance the application of litter. *Applied Engineering in Agriculture*, 26(5): 759-767.
58. Srivastava, P., A.K. Gupta\*, and L. Kalin. 2010. An ecologically-sustainable surface water withdrawal framework for cropland irrigation - a case study in Alabama. *Environmental Management*, 46(2): 302-313.
59. Sen\*, S., P. Srivastava, J. Dane, K. Yoo, and J. Shaw. 2010. Spatial-temporal variability and hydrologic connectivity of runoff generation areas in a North Alabama pasture - implications for phosphorus transport. *Hydrological Processes*, 24(3): 342-356.
60. Srivastava, P., S. Sanders\*, J.H. Dane, Y. Feng, J. Basile, and M.O. Barnett. 2009. Miscible displacement column studies to evaluate the sorption and mobility of sulfadimethoxine and ormetoprim in soil. *Vadose Zone Journal*, 8(1):32-41.
61. Sen\*, S., P. Srivastava, K. Yoo, J. Dane, J. Shaw, and M.S. Kang\*. 2008. Runoff Generation Mechanisms in Pastures of the Appalachian Plateau Region of Alabama – A Field Investigation. *Hydrological Processes* 22(21):4222-4232.
62. Sanders\*, S., P. Srivastava, Y. Feng, J.H. Dane, J. Basile, and M.O. Barnett. 2008. Sorption of veterinary antimicrobials sulfadimethoxine and ormetoprim in soil. *Journal of Environmental Quality*, 37(4): 1510-1518.
63. Kang\*, M.S., P. Srivastava, T. Tyson, J. Fulton, K. Yoo, and W.F. Owsley. 2008. GIS-based decision support system for poultry litter management. *Computers and Electronics in Agriculture* 64(2):212-224.
64. Bhattarai\*, G., P. Srivastava, L. Marzen, D. Hite, and L. Hatch. 2008. Assessment of economic and water quality impacts of land use change using a simple bioeconomic model. *Journal of Environmental Management*. *Environmental Management*, 42(1): 122-131.
65. Johnson, T.E., J.N. McNair, P. Srivastava, and D.D. Hart. 2007. Stream ecosystem responses to spatially variable land cover: A model with implications for riparian restoration. *Freshwater Biology* 52(4): 680-695.
66. Srivastava, P., K.W. Migliaccio, and J. Šimunek. 2007. Landscape models for simulating water quality at point, field, and watershed scales. Invited Manuscript for Centennial Issue of *Transactions of the ASABE* 50(5): 1683-1693.
67. Migliaccio, K.W. and P. Srivastava. 2007. Hydrologic components of watershed-scale models. Invited Manuscript for Centennial Issue of *Transactions of the ASABE* 50(5): 1695-1703.
68. Butler\*, G.A. and P. Srivastava. 2007. An Alabama BMP database for evaluating water quality impacts of alternative management practices. *Applied Engineering in Agriculture* 23(6): 727-736.
69. Srivastava, P., J.N. McNair, and T.E. Johnson. 2006. Comparison of mechanistic and neural network approaches for stream flow modeling in an agricultural watershed. *Journal of the American Water Resources Association (JAWRA)* 42(2):545-563.
70. Yagow, G., B. Wilson, P. Srivastava, and C. Obropta. 2006. Use of biological indicators for TMDL development and implementation. *Transactions of the ASABE* 49(4): 1023–1032.

71. Kang\*, M.S., P. Srivastava, J. Fulton, T. Tyson, F. Owsley, and K.H. Yoo. 2006. Optimal Poultry Litter Management through GIS-based Transportation Analysis System. *Journal of the Korean Society of Agricultural Engineers (JKSAE)* 48(7): 73-86. (In English)
72. Khalequzzaman, M., P. Srivastava, and F.S. Faruque. 2004. The Indian river-linking project: a geologic, hydrologic, ecologic, and socio-economic perspective. In *Proceedings of the International Conference on Regional Cooperation on Transboundary Rivers: Impact of the Indian River-linking Project*. December 17-19, 2004, Dhaka, Bangladesh. (Peer-reviewed proceeding).
73. Srivastava, P., J.M. Hamlett, and P.D. Robillard. 2003. Watershed Optimization of Agricultural Best Management Practices: Continuous Simulation vs. Design Storms. *Journal of American Water Resources Association*, 39(5): 1043-1054.
74. Srivastava, P., J.M. Hamlett, P.D. Robillard, and R.L. Day. 2002. Watershed optimization of best management practices using AnnAGNPS and a genetic algorithm. *Water Resources Research*, 38(3): 1-14.
75. Srivastava, P., R.L. Day, P.D. Robillard, and J.M. Hamlett. 2001. AnnGIS: Integration of GIS and a continuous simulation model for non-point source pollution assessment. *Transactions in GIS* 5(3): 221-234.
76. Chaubey, I., P. Srivastava, L. Han, S.N. Addy and X. Yin. 2000. Using GIS, remote sensing and water quality modeling to estimate animal waste pollution potential. P.K. Bollich (ed.). In *Proc. Agricultural Water Quality and Quantity: Issues for the 21st Century* 136-143. (Peer-reviewed proceeding).
77. Srivastava, P., T.A. Costello, D.R. Edwards, and J.A. Ferguson. 1998. Validating a vegetative filter strip performance model. *Transactions of the ASAE*. 41(1): 89-95.
78. Edwards, D.R., P.A. Moore, Jr., T.C. Daniel, P. Srivastava, and D.J. Nichols. 1997. Vegetative filter strip removal of metals in runoff from poultry litter-amended fescue grass plots. *Transactions of the ASAE*. 40(1): 121-127.
79. Srivastava, P., T.A. Costello, and D.R. Edwards. 1996. A direct, approximate solution to the modified Green-Ampt infiltration equation. *Transactions of the ASAE*. 39(4): 1411-1413.
80. Srivastava P., D.R. Edwards, T.C. Daniel, P.A. Moore Jr. and T.A. Costello. 1996. Performance of vegetative filter strips with varying pollutant source and filter strip lengths. *Transactions of the ASAE*. 39(6): 2231-2239.
81. Edwards D.R., P.A. Moore, Jr., T.C. Daniel, and P. Srivastava. 1996. Poultry litter treated effects on quality of runoff from fescue plots. *Transactions of the ASAE*. 39(1): 105-110.

### **Invited Lectures**

1. Srivastava, P. 2019. Current and Projected Impacts of Droughts on Water Resources of the Southeast. NIDIS National Drought & Public Health Summit. June 17.
2. Srivastava, P. 2019. Transforming Ecological Engineering Education Using a Hybrid Pedagogical Approach. Paper No. 19-01969. ASABE Annual International Meeting, Boston, Massachusetts, July 6 - 11. (Invited Presentation)
3. Srivastava, P. 2019. Current and Projected Impacts of Climate Variability and Change on Water Resources. Alabama Water Rally, Mobile, AL. March 16.

4. Srivastava, P. 2019. ACF Drought Early Warning Activities at Auburn University Water Resources Center. ACF Stakeholders Meeting, Lagrange, GA. January 11.
5. Srivastava, P. 2018. Using Climate Information for Reducing Vulnerability of Water Resources. ASABE International Meeting, Detroit, MI. July 28-August 1.
6. Srivastava, P. 2018. Overview of ACF Drought Early Warning Activities at Auburn University Water Resources Center, NIDIS-ACF Stakeholders Meeting, June 14.
7. Srivastava, P. 2018. Using Climate Information for Reducing Drought and Water Quality Impacts. Keynote Speech at the 2018 International Conference on Sustainable Technologies for Intelligent Water Management, Indian Institute of Technology-Roorkee, India. February 16-19.
8. Srivastava, P. 2018. Auburn University Water Resources Center Research and Outreach Programs. NIWR and MS-AL Sea Grant Joint Meeting. February 2.
9. Srivastava, P. 2017. Impact of Climate Variability (Drought) and Climate Change on Water Resources. Climate Change and Everglades Restoration Workshop, Everglades Foundation, Miami, FL. August 24.
10. Srivastava, P. 2017. Overview of ACF Drought Research at the Water Resources Center. Webinar. Institute of Water Resources, US Army Corps of Engineers, National Capitol Region. April 28.
11. Srivastava, P. 2017. Retrospective and Future Droughts in the Southeast. Water Policy Summit-Coastal Resiliency, University of Alabama, Tuscaloosa, AL. April 6-7.
12. Srivastava, P. 2017. Droughts in the Southeast and Drought Early Warning System (DEWS). Annual Alabama Rural Water Association Technical Conference, March, Mobile, AL.
13. Srivastava, P. 2017. U.S. Drought Monitor. NOAA's Southeast and Caribbean Regional Collaboration Team (SECART) Meeting, February, Atlanta, GA.
14. Srivastava, P. 2016. Incorporating Climate Information in Water Resources Decision-making. Troy 3rd Annual Water Resource Management and Economic Conference, Phenix City, AL.
15. Srivastava, P and E. Reutebuch. 2016. Auburn University Water Resources Center – Research Progress. Rotary Club, Auburn, AL.
16. Srivastava, P. 2016. History of NIDIS Drought Early Warning System (DEWS) for the ACF River Basin. NIDIS Strategic Planning Meeting, Auburn, AL.
17. Srivastava, P. 2016. Apalachicola-Chattahoochee-Flint (ACF) River Basin DEWS related research. ACF Stakeholders Annual Meeting, Columbus, GA.
18. Srivastava, P. 2016. Making Big Data Usable - Suggestions for the National Water Model - Water Policy Summit, University of Alabama, April, Tuscaloosa, AL
19. Srivastava, P. 2016. Mitigating the Effect of Drought - Vision for Sustainable Irrigation in Alabama While Protecting Instream Flows, Alabama Water Agencies Working Group - Instream Flow Panel, February, Montgomery, AL.
20. Srivastava, P. 2016. Apalachicola-Chattahoochee-Flint (ACF) River Basin Drought Early Warning System (DEWS), NIDIS Workshop, April, Lincoln, NE
21. Srivastava, P. 2016. Apalachicola-Chattahoochee-Flint (ACF) River Basin DEWS Related Research, ACF Stakeholder, May, Columbus, GA.

22. Srivastava, P. 2016. Auburn University Water Resources Center: Current and Planned Activities, ALOAS Meeting, September, Auburn AL
23. Srivastava, P. 2015. Incorporating Climate Information in Water Resources Decision-making, National Water Center, October, Tuscaloosa, AL.
24. Srivastava, P. 2015. Environmental Issues Related to Migration of Agriculture from West to East. Food, Energy, Water Nexus Conference, October, Boulder, CO.
25. Srivastava, P. 2015. Environmental Concerns/Limits on Withdrawal for Sustainable Irrigation in Alabama (and Georgia). Food, Energy, Water Nexus Conference, October, Boulder, CO.
26. Srivastava, P. 2015. Auburn University Water Resources Center: Current Activities and Vision for Sustainable Water Resources Management in Alabama, Alabama Water Resources Conference & Symposium, September 9-11, 2015, Orange Beach, AL.
27. Srivastava, P. 2015. Reducing Climate Risks. IBSS Annual Meeting, Auburn, AL.
28. Srivastava, P. 2015. Reducing Climate Risks to Water Resources, This is Research, Auburn University, September, Auburn, AL.
29. Srivastava, P. 2015. Challenges with Biosystems Engineering Education and Recommendations for Action, North American College Teachers Association (NACTA) Annual Meeting, June 14-18, Athens, GA.
30. Srivastava, P. 2015. Incorporating Climate Information in Water Resources Decision-making. Department of Agricultural and Biological Engineering, University of Mississippi, Starksville, MS. March, 2015.
31. Srivastava, P. 2015. Incorporating Climate Information in Water Resources Decision-making. School of Forestry and Wildlife Sciences, Auburn University, Auburn, AL. January 21, 2015.
32. Srivastava, P. 2015. Climate Information for Managing Risks in Water Resources. Workshop on Climate Change Science and Policy in support of Auburn University's cluster hiring initiative, Auburn University, Auburn, AL. January 13, 2015.
33. Srivastava, P. 2014. Incorporating Climate Information in Water Resources Decision-making. Department of Environmental Science and Technology, University of Maryland, College Park, October 22, 2014.
34. Srivastava, P. 2014. A comprehensive webGIS-based poultry litter management system for nutrient management planning and litter transportation. Department of Environmental Science and Technology, University of Maryland, College Park, MD, October 22, 2014.
35. Srivastava, P. 2014. Critical Water Issues and Approaches in the Southeast. Presented at the LEAD21-H2O Symposium, Kansas City, MO, October 5-6, 2014.
36. Srivastava, P. 2014. Transforming Ecological Engineering Education Using a Hybrid Pedagogical Approach. Special Curriculum and Body of Knowledge Plenary Session. 14th American Ecological Engineering Society Meeting, Charleston, SC, June 9-11, 2014.
37. Srivastava, P. 2014. Mitigating Effects of Drought - Visions for Sustainable Irrigation. Irrigation Association's Smart Irrigation Month: Bringing Water to Life Webinar Series. May 21, 2014.
38. Srivastava, P. 2014. A Comprehensive WebGIS-based Poultry Litter Management System for Nutrient Management Planning and Litter Transportation. Given to Byron Stein, Dairy

and Intensive Livestock Industries Unit, New South Wales Department of Primary Industries, Australia. May 21, 2014.

39. Srivastava, P. 2013. Reducing Drought Risks in the Southeast USA: Quantification of Drought Information Value, Development of Drought Indices, and Communication of Drought Information. NOAA/SARP Webinar Series. September 19, 2013.
40. Srivastava, P. 2013. Climate Information in Water Resources Decision-making. Indian Institute of Technology, Roorkee, India. June 15, 2013.
41. Srivastava, P. 2013. How Climate Change Could Affect Alabama's Rainfall - Any Why It Matters. Alabama Water Policy Symposium, Auburn University, Auburn, AL. May 10, 2013.
42. Srivastava, P. 2012. Incorporating Climate Information in Water Resources Decision-making. Climate Science Applications Program, Research Applications Laboratory, National Center for Atmospheric Research, Boulder, CO. August 14, 2012.
43. Srivastava, P. 2012. Ecologically-Sustainable Surface Water Withdrawal for Cropland Irrigation and Other Uses through Incorporation of Climate Variability. Annis Water Resources Institute, Grand Valley State University, Muskegon, MI. April 13, 2012. (with Honorarium)
44. Srivastava, P., K. Ingram, L. Kalin, P. Knox, D. Stooksbury, M. Chelliah, and M. Dunn. 2011. Community Water Deficit Index (CWDI) - A Tool for Forecasting Drought in the Southeastern U.S. Presented at the NIDIS Climate Outlook Forum and Pilot Review Meeting. Lake Lanier Islands Resort, Buford, GA. December 1-2, 2011.
45. Bolson, J., C. Martinez, P. Srivastava, N. Breuer, and P. Knox. 2011. Assessing water managers' needs for, perceptions of, and capacity to integrate climate information into decision making. Presented at the NIDIS Climate Outlook Forum and Pilot Review Meeting. Lake Lanier Islands Resort, Buford, GA. December 1-2, 2011.
46. Srivastava P. 2011. A Comprehensive WebGIS-based Poultry Litter Management System for Nutrient Management Planning and Litter Transportation. Biological and Agricultural Engineering Department, University of Georgia, Athens, GA. November 10, 2011.
47. Srivastava, P., C. Martinez, and J. Bolson. 2010. NIDIS-Supported Efforts in the ACF River Basin. NIDIS Meeting, Albany, GA. November.
48. Srivastava, P. 2010. Why understanding fundamental hydrologic and nutrient transport processes so important for nonpoint source pollution control? Indian Institute of Technology, Kharagpur, India. January 2010. (with Honorarium)
49. Srivastava, P. 2009. Climate variability and change impacts on water resources of the Southeastern USA. NOAA Climate Prediction Center, Silver Springs, MD. August 2009.
50. Srivastava, P. 2009. A webGIS-based poultry litter decision support system (PLDSS) for nutrient management planning and optimal utilization of litter. Arkansas Cooperative Extension System, Little Rock, AR. July 2009.
51. Srivastava, P. 2009. Reservoir resiliency under changing climate: Best management practices and watershed management. Dust Bowl to Mud Bowl Conference. Soil and Water Conservation Society. Kansas City, MO. September 2009.
52. Srivastava, P. 2009. Ecologically-Sustainable Surface Water Withdrawal for Cropland Irrigation through Incorporation of Climate Variability. The Thirteenth International

Conference on Diffuse Pollution and Integrated Watershed Management, DIPCON 2009, International Water Association, Seoul, South Korea. October 2009.

53. Srivastava, P. 2009. Measuring and modeling hydrologic response of a pasture hillslope. Seoul National University, Seoul, South Korea. October 2009. (with Honorarium)
54. Srivastava, P. 2008. A presentation entitled "Ecologically-sustainable surface water withdrawal for cropland irrigation in Alabama: How much water can we withdraw?" was given at the Certified Crop Advisor training on December 16, 2008.
55. Srivastava, P. 2007. Hydrologic and nutrient transport processes and GIS-based decision support system for poultry litter management. Soil and Water Conservation Society Tri-State Meeting (Alabama, Florida, and Georgia), May 17-19, 2007, Quincy, Florida
56. Srivastava, P. 2006. Ecological Engineering: What it is and why is it needed? Biosystems Engineering Department, Auburn University, Auburn, AL. October 2006.
57. Hart, D.D., T.E. Johnson, J. N. McNair, and P. Srivastava. 2004. Stream ecosystem responses to spatially variable landcover: linking theoretical and empirical approaches to set riparian restoration priorities. 2nd International Symposium on Riverine Landscapes. The scientific basis of restoring watercourses in landscapes. August 15-21, Bredsel, Älvsbyn, Sweden.
58. Srivastava, P. 2004. Monitoring and Modeling Investigations to Control Nutrient and Sediment Non-Point Source Pollution. Biosystems Engineering Department, Auburn University, Auburn, AL. May.
59. Srivastava, P. 2003. How Integrated Modeling Systems Can Help Improve Watershed Management Decisions? University of Pennsylvania, Philadelphia, PA. March 6th.
60. Carr\*, J. and P. Srivastava. 2003. A Compilation and Evaluation of Stream Restoration Projects: Learning from Past Projects to Improve Future Success. Schuylkill Watershed Congress. Pennsylvania State University Reading Campus, Reading, PA, March. (\*research staff supervised by Dr. Srivastava)
61. Carr\*, J. and P. Srivastava. 2003. A Compilation and Evaluation of Stream Restoration Projects: Learning from Past Projects to Improve Future Success. Keystone Stream Team Meeting. Harrisburg, PA, April. (\*research staff supervised by Dr. Srivastava)
62. Srivastava, P. 2002. Watershed optimization of agricultural BMPs using AnnAGNPS and a genetic algorithm integrated system. Community Modeling Workshop, Chesapeake Bay Research Consortium, Annapolis, MD, June.
63. Srivastava, P. 2002. Optimization of agricultural BMPs at a watershed-scale using genetic algorithm-GIS-AnnAGNPS integrated system. Smithsonian Environmental Research Center, Edgewater, MD. March 21st.
64. Sandi Formica, M. Anderson, M. Van Eps, T. Morris and P. Srivastava. 2002. Community Approach to Handling and Utilizing Dairy Manure. The 2002 Annual Arkansas Water Resources Center Conference: "Adequate Quality Water Supplies to Meet Our Public Perspectives." Fayetteville, AR. April 23-24.
65. Srivastava, P. 2001. Watershed Optimization of Best Management Practices Using AnnAGNPS, GIS and a Genetic Algorithm. School of Environmental Science, Engineering, and Policy, Drexel University, Philadelphia, PA. October.

66. Srivastava, P. 2001. Watershed Optimization of Best Management Practices Using AnnAGNPS, GIS and a Genetic Algorithm. Patrick Center for Environmental Research. Academy of Natural Sciences, Philadelphia, PA. October.
67. Srivastava, P., S. J. Formica, and M. Van Eps. 2001. A Watershed Approach to Assess the West Fork of the White River. The 2001 Arkansas Water Resources Center Annual Conference: "TMDL and Related Water Quality Issues." Fayetteville, AR. April 3-4.
68. Srivastava, P. 2000. Modeling and Monitoring Investigations to Assess Non-Point Source Pollution. Patrick Center for Environmental Research, The Academy of Natural Sciences of Philadelphia.
69. Srivastava, P. 1999. A GIS, Genetic Algorithm, and AnnAGNPS Integrated System for NPS Pollution Assessment. Arkansas Department of Environmental Quality, Little Rock, AR.

### **Outreach Publications**

1. Bearden, B., P. Srivastava, R. McNider, and A. Ernest. 2016. The Next Frontier in Alabama Water Policy: The Food-Energy-Water Nexus. The WAVE Water Policy Column. The WAVE, 37(2): 17-22.
2. Singh, S., P. Srivastava, A. Abebe, and S. Mitra. 2015. Decadal, Inter-decadal Climate Variability Modulate Droughts. Dry Times, NIDIS Newsletter, 5(2): 4.
3. Srivastava, P., S. Mitra, S. Singh, L. Torak, M. Masters, D. Yates, and K. Miller. 2014. Groundwater Measurement as Drought Indicator in Southeast. Dry Times, NIDIS Newsletter, 4(2).
4. Srivastava, P., L. Kalin, K. Ingram, D. Stooksbury, M. Chelliah, M. Dunn, and R. Marcus. 2011. City Uses Climate Information for Drought Preparedness. NIDIS Drought Research Special Issue, 2(2).
5. Sarkar, R. B. Ortiz, V. Sharda\*, and P. Srivastava. 2012. The ABCs of Climate Variability. Alabama Cooperative Extension System, ANR-1437. 4 pages.
6. Sharda\*, V., B. Ortiz, and P. Srivastava. 2010. Impact of El Niño Southern Oscillation on Precipitation in Alabama. Extension Timely Information Sheets (August 2010).
7. Sen\*, S., P. Srivastava, K. Yoo, and M. Kent Stanford. 2010. Pasture Hillslope Hydrology of the Sand Mountain Region in North Alabama. Extension Timely Information Sheets (September 2010).
8. Sen\*, S., T. Way, P. Srivastava, J. Lamba, and M. Kent Stanford. 2010. Water Quality Benefits of Subsurface-Banded Poultry Litter. Extension Timely Information Sheets (September 2010).
9. Brantley, E. and P. Srivastava. 2010. Surface water withdrawal for sustainable irrigation. ACES Timely Information Sheet. Extension Timely Information Sheets (December 2010)