

## **MARGARET W. GITAU, Ph.D.**

Agricultural and Biological Engineering, Purdue University.  
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### **EDUCATION**

- Ph.D. Agricultural and Biological Engineering** **December 2003.**  
Pennsylvania State University. University Park, PA.
- M.S. Agricultural Engineering** **December 1996.**  
University of Nairobi, Nairobi, Kenya.
- B.S. Agricultural Engineering.** **December 1992.**  
University of Nairobi, Nairobi, Kenya

### **EXPERIENCE**

- Associate Professor** Purdue University, West Lafayette, IN. **Aug 2015-Present**
- Conduct research in environmental and natural resources engineering with particular focus on: hydrologic and water quality modeling; fate and transport of critical contaminants including sediment, nutrients, and pathogens; understanding of the associated ecological responses; trends and impacts of land use, land management, and climate on water resources; sustainable water resources management; and, the development of computer and internet-based applications.
  - Teach courses in agricultural and biological engineering particularly in the area of environmental and natural resources engineering.
- Associate Professor** Florida A&M University, Tallahassee, FL. **Aug 2014-May 2015**
- Conducted research in natural resources conservation engineering with focus on land use and land management change, water resource impacts, ecologic responses, hydroclimatic interactions, non-point pollution, hydrologic/water quality modeling, watershed/water resource assessment and management, and contaminant fate and transport.
  - Taught courses in biological and agricultural systems engineering particularly in the area of natural resources conservation engineering.
  - Assisted with ABET Accreditation activities.
  - Provided service to the University and the public in general.
- Program Leader (Interim), Biological and Agricultural Systems Engineering (BASE), Florida A&M University, Tallahassee, FL.** **Nov 2012-May 2015**
- Managed assessment and continuous improvement of curriculum, oversaw ongoing ABET Accreditation activities.
  - Enabled and encouraged research and necessary relationships with key academic units.
  - Guided program change per University and College mission and strategic planning.
  - Supervised and hired personnel, assigned responsibilities, oversaw and kept appropriate records on faculty/staff/students/student workers, facilitated regular BASE meetings.

- Conducted degree audits, processed degree certifications, scheduled courses, and provided necessary support for students and alumni.
- Organized and facilitated BASE Advisory Board meetings.

**Assistant Professor**, Florida A&M University, Tallahassee, FL. **Jan 2008-Jul 2014**

- Conducted research in natural resources engineering particularly in the areas of non-point pollution, watershed/water quality modeling and management, contaminant fate and transport, and land use change and water resource impact analyses. Established a research and teaching program in the field.
- Taught courses in non-point source pollution, water management system design, natural resources conservation engineering, computer applications, and the scientific method.
- Assisted with ABET Accreditation activities.
- Provided service to the University and the public in general.

**Research Associate**, Purdue University, W. Lafayette, IN **Jan 2007-Jan 2008**

- Developed computational approaches to evaluating BMP scenarios considering stochasticity of weather using advanced high-throughput computing techniques.
- Modeled watershed response as a function of land use and management, and optimized best management practices (BMP) for water quality improvement under the Conservation Effects Assessment Project (CEAP).
- Conducted land use change analyses to determine effects on water quality.
- Evaluated existing model autocalibration tools to determine suitability and conditions for optimal performance in agricultural watersheds.
- Assisted in GIS, modeling, water quality sampling, and nutrient transport field studies on research projects related to natural resources engineering and non-point source pollution.
- Supported technical needs of faculty and graduate students with regard to analysis, modeling, and interpretation and communication of results.
- Lectured (guest): graduate/senior level undergraduate course “The Future of Water Resources” Agric. and Biological Eng., Earth and Atmospheric Sci., Purdue University.

**Program (Research) Associate**, University of Arkansas, Fayetteville, AR **Dec 2005-Jan 2007**

- Conducted large scale watershed and water quality modeling to identify key non-point pollutant source areas in priority watersheds in Arkansas. Led a team of 6 graduate research assistants in accomplishing project tasks.
- Wrote grant proposals to various state and federal agencies to develop externally funded programs in the area of natural resources conservation engineering.
- Developed computer applications including database systems, user-friendly tools, and on-line decision support systems (DSS) to help state and federal agencies to design suitable management interventions in watersheds impacted by non-point source pollution.
- Regionalized Soil and Water Assessment Tool (SWAT) model parameters for use in Arkansas’ ungauged watersheds. Developed methodology for use in other regions.
- Prepared project documentation and users’ manuals on project tools and GIS data.

- Provided training to agency personnel on use and interpretation of model results, and on use of the various tools and GIS data.
- Managed a dynamic watershed modeling laboratory with 1 program technician and 6 graduate research assistants in its employ.
- Assisted in stream water quality sampling and field measurements.
- Collaborated on USDA-CSREES 406 project in a crop dominated watershed in Arkansas; provided support on non-point source modeling, BMP evaluations, and optimization.
- Conducted instructional workshops on and supported faculty and graduate students in data analysis, modeling, and interpretation and communication of results.
- Lectured (guest): graduate course “Non-point Source Pollution Modeling” Department of Biological and Agricultural Engineering, University of Arkansas.

**Research Associate, Pennsylvania State Univ/USDA-ARS Jan 2004-Nov 2005**

- Conducted watershed modeling to improve and validate the characterization of watershed areas with regard to pollutant losses and representation of management practices.
- Evaluated the suitability of current and alternative management practice implementation schemes based on pollutant reduction effectiveness and costs.
- Validated SWAT model suitability for evaluating BMP impacts based on long-term pre- and post-BMP monitoring data, and suitability of BMP Tool as complement to the model.

**Graduate Research Assistant, Pennsylvania State Univ./USDA-ARS Jan 2000-Dec 2003**

- Developed a tool for quantifying the effectiveness of management practices for agricultural phosphorus loss control. Received requests from a variety of end users.
- Carried out watershed and water quality modeling for representation of watershed runoff, and non-point pollutant losses, and the determination of critical pollutant loss areas.
- Developed a methodology for optimizing BMP selection and placement based on pollutant reduction effectiveness and costs.
- Determined optimal scenarios for cost-effective non-point source pollution reduction in the Town Brook Watershed, New York.
- Made practical recommendations for cost-effective management practice solutions in the New York City’s water supply watersheds.
- Assisted with New York City Department of Environmental Protection watershed modeling and quantification of management practice effects at a large scale.
- Lectured (guest): graduate course “Surface Transport of Agricultural Pollutants” Department of Agricultural and Biological Engineering, Pennsylvania State University.
- Developed internship plans and learning objectives for two USDA-ARS summer interns. Worked with the summer interns in their internship projects.

**Research and Teaching Fellow, University of Nairobi, Nairobi, Kenya Jun 1996-Dec 1999**

- Taught undergraduate courses: “Soil and Water Conservation”, “Land Evaluation and Land Use Planning”, “Surveying.” Assisted with two graduate courses.
- Advised two undergraduate students for their senior thesis work.

**Visiting Scholar, Silsoe Research Institute, Silsoe, U.K. Sep 1996-Oct 1996**

- Developed a proposal for research on flow pathways in crusting soils.

## FUNDED GRANTS

1. Frankenberger, J., A. Kaleita, M. Helmers, R. Cooke, L. Christianson, **M. Gitau**, W. Burgess, C. Hay, and S. Sritharan. Transforming Agricultural Drainage Education to Meet 21st Century Water Management Needs. 10/02/2017-10/01/2020. USDA. \$300,000.
2. Chaubey, I., D. Drollinger, G. Fox, **M. Gitau**, D.Z. Haman, D. Harmel, S. Irmak, A.P. Nejadhashemi, D. Saraswat, S. Searcy, A. Srinivasulu, and M.L. Wolfe. Global Water Security for Agricultural Production and Natural Resources. 10/01/2017-09/30/2019. USDA. \$50,000.
3. Agrawal, R., M. Tuinstra, P. Bermel, **M. Gitau**, N. Duval-Couetil, J. Sesmero, S. Brouder, M. Harris, and A. Anandhi Swamy. Sustainable Food Energy and Water Systems. 09/01/2017-08/31/2022. NSF Research Traineeship Program. \$2,500,000.
4. Johnson, D., **M.W. Gitau**. Life Cycle Impacts Modeling of Biomass Production. 06/01/2016-05/31/2017. Purdue Center for the Environment, \$19,120.
5. **Gitau, M.W.**, D.C. Flanagan, and M.E Baldwin. Comparison of Three Common Stochastic Weather Generators: Implications for Water Resources Modeling. 01/01/2016-12/31/2016. Purdue Climate Change Research Center. \$5,391.
6. Donkin, S., K. Ajuwon, T. Casey, **M. Gitau**, H. Gowher, O. Hart, M. McClure, J. Rickus, and K. Solomon. Building Partnerships with HBCUs: Graduate Faculty Diversity Ambassador Program. 01/01/2016-12/31/2018. Purdue DTA, \$150,000.
7. **Gitau, M.W.**, V. Merwade, Z. Ma, and B. Pijanowski. Assessment of Current Water Quality Indices in Relation to Ecological Functioning in the Coastal Zone. 05/15/2015-12/31/2015. Purdue Center for the Environment, \$16,943.
8. **Gitau, M.**, C. Li, K. Milla, A. Cooper. Computing Solutions for Enhanced Teaching and Learning in the Biological and Agricultural Systems Engineering Mobile Classroom Environment. 09/01/2010-08/31/2013, USDA, \$149,645.
9. Milla, K., **M. Gitau**, O. Mbuya. Developing a Decision Support Interface System for Selection and Implementation of Agricultural Best Management Practices in Florida. 09/01/2011-08/31/2014, USDA, \$599,795.
10. Panda, S.S., **M. Gitau**, M. Smolen. Online Estimation of Stream Fecal Coliform Load from Non-Point Sources. 09/01/2011-08/31/2012. USDA National Water Quality Program, Southern Region Projects, \$24,153.
11. Milla, K., **M. Gitau**, S. Pancholy. Enhancing NASA's COAST Online Application for Agricultural Best Management Practices Decision Support. 07/01/2009-06/30/2011, NASA, \$346,494.
12. Ochlockonee River Soil and Water Conservation District, **M. Gitau**. FAMU Stormwater Educational Facility. 10/01/2009-09/30/2010, EPA/FDEP 319h, \$84,826.
13. **Gitau, M.** An Assessment of Urban Land Use Trends in the Caloosahatchee River Watershed. 11/01/2013-06/30/2014, Faculty Research Awards Program. \$9,781.

14. **Gitau, M.**, N. Bailey. Integrating Agricultural Best Management Practices into the HSPF Model for Improved Watershed Decision Making in the Caloosahatchee Watershed, SW Florida. 10/15/2009-08/31/2010, USDA, \$8,500.
15. **Gitau, M.** Suitability of Enhanced HSPF Model for Assessing Alternative Best Management Practice (BMP) Scenarios. 08/01/2010-07/31/2011, Faculty Research Awards Program. \$4,250.
16. **Gitau, M.W.** Mobile Classroom Solutions for the BASE Program. 2009. \$18,842.
17. **Gitau, M.W.** Multimedia Systems Integration in Biological and Agricultural Systems Engineering Computer Lab. 2009. Internal. \$7,260.
18. Chaubey, I., **M. Gitau**, and P. Tacker. Identification of NPS pollution sources and BMP evaluation in 11-digit HUCs in the L'Anguille River watershed. 2006-2008. Arkansas Natural Resources Commission. \$81,034.

### TEACHING EXPERIENCE

Computer Models in Environmental and Natural Resources Engineering	Graduate	2018, 2016
Nonpoint Source Pollution Engineering	Graduate	2017
Project Planning and Management/ Senior Capstone Projects	Undergraduate	2018, 2017
Water, Technology, and Society (Guest)	Graduate	2017, 2016
Environmental Systems Management	Undergraduate	2016
Senior Capstone Projects	Undergraduate Technical Mentor	2016, 2015
Nonpoint Pollution	Undergraduate	2011-2014, 2009, 2008
Water Management Systems Design	Undergraduate	2014, 2012, 2009, 2008
Natural Resources Conservation Engineering	Undergraduate	2013, 2010
Introduction to Design Analyses	Undergraduate	2013, 2009, 2008
Introduction to Computer Applications	Undergraduate	2015, 2014
Capstone Senior Design I/II*	Undergraduate	2010-2015
Principles of Engineering Economy	Undergraduate <sup>†</sup>	2011
The Future of Water Resources (Guest)	Graduate/senior level undergrad	2007
Non-point Source Pollution Modeling (Guest)	Graduate	2006
Surface Transport of Agricultural Pollutants (Guest)	Graduate	2002
Soil and Water Conservation	Undergraduate	} 1997-1999
Land Evaluation and Land Use Planning	Undergraduate	
Surveying	Undergraduate	

Fluid Mechanics for Land and Water Management Students (TA)	Graduate	}
Energy for Agriculture (TA)	Graduate	

\*Restructured the course to be team-taught. Developed Capstone Senior Design Philosophy and Design Process Guidance Document. †Service course to engineering technology.

## PUBLICATIONS

### Peer-Reviewed Manuscripts

1. Guo, T., **M. Gitau**, V. Merwade, J. Arnold, R. Srinivasan, M. Hirschi, and B. Engel. 2018. Comparison of performance of tile drainage routines in SWAT 2009 and 2012 in an extensively tile-drained watershed in the Midwest. *Hydrology and Earth System Sciences*. DOI: <https://doi.org/10.5194/hess-22-89-2018>.
2. Guo, T., S. Mehan, **M. Gitau**, Q. Wang, T. Kuczek, and D. Flanagan. 2017. Impact of number of realizations on the suitability of simulated weather data for hydrologic and environmental applications. *Stochastic Environmental Research and Risk Assessment*. DOI 10.1007/s00477-017-1498-5.
3. Li, S., **M. Gitau**, B.A. Engel, L. Zhang, Y. Du, and D. Bosch. 2017. Development of a soil moisture-based distributed hydrologic model for determining hydrologically based critical source areas. *Hydrological Processes*. DOI: 10.1002/hyp.11276.
4. Sekaluvu, L., L. Zhang, and **M.W. Gitau**. 2017. Evaluation of constraints to water quality improvements in response to conservations measures in the Western Lake Erie Basin. *Journal of Environmental Management*. <https://doi.org/10.1016/j.jenvman.2017.09.063>.
5. Guo, T., R. Cibin, I. Chaubey, **M.W. Gitau**, J. Arnold, R. Srinivasan, J. Kiniry, and B.A. Engel. 2017. Evaluation of bioenergy crop growth and the impacts of bioenergy crops on streamflow, tile drain flow and nutrient losses in an extensively tile-drained watershed using SWAT. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2017.09.148>.
6. **Gitau, M.W.**, S. Mehan, and T. Guo. 2017. Weather generator utilization in climate impact studies: implications for water resources modeling. *European Water*. 59:69-75.
7. Liu, Y, D. Flanagan, **M. Gitau**, S. McMillan, I. Chaubey, and B. Engel. 2017. A review on effectiveness of best management practices in improving hydrology and water quality: needs and opportunities. *Science of the Total Environment*. DOI: 10.1016/j.scitotenv.2017.05.212.
8. Mehan, S., T. Guo, **M. Gitau**, and D. Flanagan. 2017. Comparative study of different stochastic weather generators for long-term climate data simulation. *Climate*. DOI:10.3390/cli5020026.
9. Guo, T., **M. Gitau**, V. Merwade, J. Arnold, R. Srinivasan, M. Hirschi, and B. Engel. 2017. Comparison of performance of tile drainage routines in SWAT 2009 and 2012 in an extensively tile-drained watershed in the Midwest. *Hydrology and Earth System Sciences Discussion. Discussion Started 02/16/2017*. DOI:10.5194/hess-2017-52.
10. Li, S., **M. Gitau**, B.A. Engel, L. Zhang, C. Wallace, Y. Du, and D.C. Flanagan. 2017. Development of a distributed hydrologic model to facilitate watershed management. *Hydrological Sciences Journal*. DOI: 10.1080/02626667.2017.1351029.

11. Chen, J., L. Theller, **M.W. Gitau**, and B.A. Engel. 2016. Urbanization impact on surface runoff of the contiguous United States. *Journal of Environmental Management*. <http://dx.doi.org/10.1016/j.jenvman.2016.11.017>.
12. **Gitau, M.W.** 2016. Long-term seasonality of rainfall in the Southwest Florida Gulf coastal zone. *Climate Research*. DOI 10.3354/cr01399.
13. **Gitau, M.W.**, J. Chen, and Z. Ma. 2016. Water quality indices as tools for decision making and management. *Water Resources Management*. DOI: 10.1007/s11269-016-1311-0.
14. Moriasi, D., **M.W. Gitau**, N. Pai, and P. Daggupati. 2015. Hydrologic and water quality models: Performance measures and criteria. *Trans. of the American Society of Agricultural and Biological Engineers*, Special Issue, 58(6): 1681-1703. DOI 10.13031/trans.58.10709.
15. Malone, R., G. Yagow, C. Baffaut, **M.W. Gitau**, Z. Qi, D.M. Amatya, P.B. Parajuli, J.V. Bonta, and T.R. Green. 2015. Parameterization of hydrologic models. *Trans. of the American Society of Agricultural and Biological Engineers*, Special Issue. 58(6): 1763-1785. DOI 10.13031/trans.58.10715.
16. G.A. Nnaji, W. Huang, **M.W. Gitau**, and Clayton Clark II. 2014. Frequency analysis of minimum ecological flow and gage height in Suwannee River, Florida. *Journal of Coastal Research*, Special Issue, 68: 152-159.
17. **Gitau, M.W.** and N. Bailey. 2012. Multi-layer assessment of land use and related changes for decision support in a coastal zone watershed. *Land* 2012, 1, 5-27; doi:10.3390/land1010005.
18. K. Rolle, **M. Gitau**, G. Chen, A. Chauhan. 2012. Assessing fecal coliform fate and transport in a coastal watershed using HSPF. *Water Science & Technology*. 66(5): 1096-1102.
19. Hoag, D.L.K., I. Chaubey, J. Popp, **M. Gitau**, L. Chiang, J. Pennington, G. Rodriguez, E. Gbur, M. Nelson, and A.N. Sharpley. 2012. Chapter 9. Lincoln Lake Watershed, Arkansas: National Institute of Food and Agriculture- Conservation Effects Assessment Project. In: D.L. Osmond, D.W. Meals, D.L.K. Hoag, and M. Arabi (Eds). *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The National Institute of Food and Agriculture- Conservation Effects Assessment Project Experience*. Pages 171-186. Soil and Water Conservation Society, Ankeny, IA.
20. **Gitau, M.W.**, L. Chiang, M. Sayeed, I. Chaubey. 2011. Watershed modeling using large scale distributed computing in Condor and SWAT model. Simulation: *Transactions of the Society for Modeling and Simulation International*. DOI: 10.1177/0037549711402524.
21. **Gitau, M.W.**, I. Chaubey, E. Gbur, J.H. Pennington, and B. Gorham. 2010. Impacts of land use change and BMP implementation in a CEAP watershed: Northwest Arkansas. *Journal of Soil and Water Conservation*. 65(6):353-368.
22. **Gitau M.W.**, Chaubey I. 2010. Regionalization of SWAT model parameters for use in ungauged watersheds. *Water*. 2(4):849-871.
23. Chiang, L., I. Chaubey, **M.W. Gitau**, and J.G. Arnold. 2010. Differentiating impacts of land use changes from pasture management in a CEAP watershed using SWAT model. *Transactions of the American Society of Agricultural and Biological Engineers*. 53(5): 1569-1584. Special Collection.

24. Chaubey, I., L. Chiang, **M.W. Gitau**, and M. Sayeed. 2010. Effectiveness of best management practices in improving water quality in a pasture-dominated watershed. *Journal of Soil and Water Conservation*. 65(6):424-437.
25. Merriman, K., **M. Gitau**, I. Chaubey. 2009. A tool for estimating best management practice effectiveness in Arkansas. *Applied Engineering in Agriculture*. 25(2): 199-213.
26. **Gitau, M.W.**, W.J. Gburek, and P.L. Bishop. 2008. Use of the SWAT model to quantify water quality effects of agricultural BMPs at the farm-scale level. *Transactions of the American Society of Agricultural and Biological Engineers*. 51(6): 1925-1936.
27. Pennington, J.H., M.A. Steele, K.A. Teague, B. Kurz, E. Gbur, J. Popp, G. Rodriguez, I. Chaubey, **M. Gitau**, and M.A. Nelson. 2008. Breaking ground: A cooperative approach to data collection from an initially uncooperative population. *Journal of Soil and Water Conservation*. 63(6):208A-211A.
28. **Gitau, M.W.**, T.L. Veith, and W.J. Gburek. 2006. Watershed-level BMP selection and placement in the Town Brook watershed, NY. *Journal of the American Water Resources Association*, 42(6): 1565-1581. **JAWRA Highlight, December 2006 issue.**
29. **Gitau, M.W.**, and T.L. Veith. 2006. Quantifying the effects of phosphorus control BMPs. Radcliffe, D.E., and M.L. Cabrera (Eds.). *Modeling Phosphorus in the Environment*. pp 349-379. CRC-Press. Boca Raton, FL. **Invited.**
30. **Gitau, M.W.**, W.J. Gburek, and A.R. Jarrett. 2005. A tool for estimating BMP effectiveness for phosphorus pollution control. *Journal of Soil and Water Conservation*, 60(1): 1-10. **JSWC Honorable Mention Research Paper Award, 2004-2008.**
31. **Gitau, M.W.**, T.L. Veith, and W.J. Gburek. 2004. Farm-level optimization of BMP placement for cost-effective pollution reduction. *Transactions of the American Society of Agricultural Engineers*, 47(6): 1923-1931.
32. Sharpley, A.N., P.J.A. Kleinman, R.W. McDowell, **M. Gitau**, and R.B. Bryant. 2002. Modeling phosphorus transport in agricultural watersheds: processes and possibilities. *Journal of Soil and Water Conservation*, 57(6): 425-439.

### Conference Presentations and Abstracts

1. Mehan, S., and **M.W. Gitau**. 2017. Estimation and correction of bias of long-term simulated climate data from Global Circulation Models (GCMs). AGU Fall Meeting, New Orleans, LA. December 11–December 15.
2. Chen, J., **M.W. Gitau**, B.A. Engel, and D.C. Flanagan. 2017. Performance of updated CLIGEN precipitation estimates and their impacts on urban runoff. 2017 American Water Resources Association Annual Conference, Portland, OR. November 5–November 9.
3. Guo, T., S. Mehan, **M. Gitau**, C. Wallace, and D. Flanagan. 2017. Hydrologic model performance as related to different realizations of climate generator simulated weather data. 2017 ASABE Annual International Meeting, Spokane, WA. July 15–July 20.
4. Mehan, S., T. Guo, **M. Gitau**, and D. Flanagan. 2017. Weather generator performance in representing statistical characteristics of observed data. 2017 ASABE Annual International Meeting, Spokane, WA. July 15–July 20.
5. Sekaluvu, L., L. Zhang, and **M. Gitau**. 2017. Challenges to water quality conservation measures within Western Lake Erie Basin. 2017 ASABE Annual International Meeting, Spokane, WA. July 15–July 20.



6. **Gitau, M.**, T. Guo, S. Mehan, J. Chen, and D. Flanagan. 2017. Weather generators in climate impact studies: Implications for water resources modeling. EWRA 10<sup>th</sup> World Congress on Water Resources and Environment, Athens, Greece. July 5–July 9.
7. Mehan, S., and **M.W. Gitau**. 2017. Quantification of bias from Global Circulation Model outputs and its correction. 38<sup>th</sup> Annual Indiana Water Resources Association Symposium, Marshall, IN. June 28–June 30.
8. Chen, J., **M.W. Gitau**, B.A. Engel, and D.C. Flanagan. 2017. Assessment of simulated precipitation from updated CLIGEN database: impacts on urban runoff. 38<sup>th</sup> Annual Indiana Water Resources Association Symposium, Marshall, IN. June 28–June 30.
9. Sekaluvu, L., and **M. Gitau**. 2017. Long-term and short-term response of water quality conservation measures within Western Lake Erie Basin. 38<sup>th</sup> Annual Indiana Water Resources Association Symposium, Marshall, IN. June 28–June 30.
10. Mijares, V., **M. Gitau**, and D. Johnson. 2017. Enhancement and testing of indices for comprehensive assessment of water quality. 38<sup>th</sup> Annual Indiana Water Resources Association Symposium, Marshall, IN. June 28–June 30.
11. **Gitau, M.W.** 2017. Perspectives on modeling watershed water quality responses and Best Management Practice effects. International Association for Great Lakes Research (IAGLR) 60th Annual Conference on Great Lakes Research: From Cities to Farms: Shaping Great Lakes Ecosystems, Detroit, MI. May 15–May 19.
12. Mijares, V., **M. Gitau**, D. Johnson. 2017. Use of water quality indices for comprehensive assessment of water quality. NCSE 17<sup>th</sup> National Conference and Global Forum on Science, Policy and the Environment: Integrating Environment and Health, Washington, DC. January 24–January 26.
13. Guo, T., B. Engel, **M. Gitau**, C. Raj, I. Chaubey, J. Arnold, R. Srinivasan, and J. Kiniry. 2016. Evaluation of bioenergy crop growth and the impacts of bioenergy crops on streamflow, tile drain flow and nutrient losses in the Little Vermillion River Watershed using SWAT. AGU Annual Fall Meeting, San Francisco, CA. December 12–December 16.
14. **Gitau, M.W.** 2016. State of Agricultural (& Biological) Engineering in the U.S.: The American Society of Agricultural and Biological Engineers (ASABE). **Invited Panel Speaker** on forum: Agricultural Engineering in Africa. Past, Present and Future. ASABE Global Initiatives Conference on Global Food Security, Stellenbosch, SA. October 24–October 27.
15. Li, S., **M. Gitau**, B.A. Engel, L. Zhang, C. Wallace, Y. Du, and D.C. Flanagan. 2016. Development of a distributed hydrologic model to facilitate watershed management. 2016 ASABE Annual International Meeting, Orlando, FL. July 17–July 20.
16. Mehan, S., **M.W. Gitau**, D.C. Flanagan, and M. Baldwin. 2016. Comparison of stochastic weather generators for long-term climate data simulation in the Great Lakes Region. 2016 ASABE Annual International Meeting, Orlando, FL. July 17–July 20.
17. Chen, J., L. Theller, **M.W. Gitau**, and B.A. Engel. 2016. Urbanization impacts on surface runoff of the contiguous United States. 2016 American Water Resources Association (AWRA) Summer Specialty Conference on GIS and Water Resources, Sacramento, CA. July 11–July 13.

18. Mehan, S., and **M.W. Gitau**. 2016. Effectiveness of stochastic weather generators in simulating long-term climate data. 37th Annual Indiana Water Resources Association Conference, Angola, IN. June 8–June 10.
19. Li, S., **M. Gitau**, B.A. Engel, L. Zhang, C. Wallace, Y. Du, and D.C. Flanagan. 2016. Distributed hydrologic and phosphorus transport modeling to facilitate watershed management. 37th Annual Indiana Water Resources Association Conference, Angola, IN. June 8–June 10.
20. **Gitau, M.W.** 2016. Rainfall seasonality effects on coastal zone water resources: Southwest Florida Gulf coastal region. NCSE 16<sup>th</sup> National Conference and Global Forum on Science, Policy and the Environment: The Food-Energy-Water Nexus, Washington, DC. January 19–January 21.
21. Moriasi, D., **M.W. Gitau**, N. Pai, and P. Daggupati. 2014. Hydrologic and water quality models: Performance measures and criteria. American Society of Agricultural and Biological Engineers Annual International Meeting, Montréal, CA. Jul 13–July 16. **Invited**.
22. **Gitau, M.W.**, C. Li, K. Milla, A. Cooper, and K. Rolle. 2013. Enhancing teaching and learning in natural resources conservation engineering and the geosciences. 17th Biennial Association of Research Directors (ARD) Symposium, Proceedings p. 133. Jacksonville, FL. April 7–April 10.
23. **Gitau, M.W.**, N. Bailey, and E. Alvi. 2011. Assessing BMP implementation for agricultural pollution control in a coastal zone watershed. 2011 USDA-NIFA National Water Conference, Washington, DC. January 31–February 1. **USDA-NIFA National Water Program Project of Excellence, 2011**.
24. **Gitau, M.W.**, K. Milla, R. Brown, D. Bottcher, and S. Pancholy. 2010. Enhancing NASA's Coastal On-line Assessment and Synthesis Tool as a visual interface for model-based assessments. 2010 ASABE Annual International Meeting, Pittsburgh, PA. June 20–June 23.
25. Milla, K., **M. Gitau**, S. Pancholy, D. Bottcher, R. Brown, T. Pride, J. Folks, and T. Anthony. 2009. Enhancing NASA's COAST online application for agricultural Best Management Practices decision support. NASA Applied Sciences Gulf Workshop, New Orleans, LA. December 8–December 10.
26. **Gitau, M.W.**, L. Chiang, and I. Chaubey. 2009. Computational approaches to evaluating BMP scenarios considering stochasticity of weather. Proceedings of the Association of Research Directors, Inc., 15th Biennial Research Symposium, 1890 Research: Sustainable Solutions for the 21st Century. Pg 123. Atlanta, GA. March 28–April 1.
27. Nnaji, G.A., **M.W. Gitau**, and W. Huang. 2009. Effects of hydrological processes on the Suwannee River coastal ecosystem. Proceedings of the Association of Research Directors, Inc., 15th Biennial Research Symposium, 1890 Research: Sustainable Solutions for the 21st Century. Pg 158. Atlanta, GA. March 28–April 1. **Student Research Award**.
28. Rolle, K.A., **M.W. Gitau**, and G. Chen. 2009. Dissemination of fecal coliforms in Juniper Creek Watershed, NW Florida. Proceedings of the Association of Research Directors, Inc., 15th Biennial Research Symposium, 1890 Research: Sustainable Solutions for the 21st Century. Pg 165. Atlanta, GA. March 28–April 1.

29. **Gitau, M.W.**, K. Rolle, E. Muhammad, G. Nnaji, G. Chen, and W. Huang. 2009. Fate and transport of various nonpoint pollutants in North Florida watersheds: Current research and future directions. 2009 USDA-CSREES National Water Conference, St. Louis, MO. February 8–February 12.
30. Gbur, E.E., **M.W. Gitau**, I. Chaubey, and J.H. Pennington. 2009. Water quality trend in a CEAP watershed. 2009 USDA-CSREES National Water Conference, St. Louis, MO. February 8–February 12.
31. Chaubey, I., L. Chiang, **M.W. Gitau**, and J.H. Pennington. 2009. BMP effectiveness evaluation in a CEAP watershed: What have we learned from watershed modeling? 2009 USDA-CSREES National Water Conference, St. Louis, MO. February 8–February 12.
32. Pennington, J., J. Popp, G. Rodriguez, E. Gbur, I. Chaubey, and **M. Gitau**, 2009. Cooperative stakeholder engagement and participation for gaining effective results. 2009 USDA-CSREES National Water Conference, St. Louis, MO. February 8–February 12.
33. **Gitau, M.W.**, L. Chiang, I. Chaubey, and M. Sayeed. 2008. Evaluating BMP scenarios under CEAP: Approaches to handling a multitude of runs and large datasets. USDA-CSREES National Water Conference, Reno, NV. February 3–February 7.
34. Chaubey, I., **M. Gitau**, L. Chiang, J.H. Popp, E. Gbur, M.A. Nelson, J. Pennington, G. Rodriguez, and B. Kurz. 2008. BMP effectiveness assessment for a pasture dominated watershed: Results from two years of CEAP assessment. USDA-CSREES National Water Conference, Reno, NV. February 3–February 7.
35. **Gitau, M.W.**, I. Chaubey, M. Nelson, J. Popp, G. Rodriguez, J. Pennington, and E. Gbur. 2007. Effectiveness and optimization of BMPs in improving water quality from an agriculturally dominated watershed. USDA-CSREES National Water Conference, Savannah, GA. January 28–February 1.
36. **Gitau, M.W.**, R. Srivastava, and I. Chaubey. 2007. Watershed response modeling in Arkansas priority watersheds: Experience with SWAT autocalibration. American Society of Agricultural and Biological Engineers Meeting Paper No. 072171. 2007 ASABE Annual International Meeting, Minneapolis, MN. June 17–June 20.
37. **Gitau, M.W.**, I. Chaubey, M.A. Nelson, and J.H. Pennington. 2007. Analyses of BMP and land use change effects in a Northwest Arkansas agricultural watershed. American Society of Agricultural Engineers and Biological Engineers Meeting Paper No. 072244. 2007 ASABE Annual International Meeting, Minneapolis, MN. June 17–June 20.
38. **Gitau, M.W.**, and I. Chaubey. 2006. Regionalization of SWAT model parameters in Arkansas priority watersheds. Managing Agricultural Landscapes for Environmental Quality: Strengthening the Science Base. Soil and Water Conservation Society, Kansas City, MO. October 10–October 13.
39. Merriman, K., **M. Gitau**, and I. Chaubey. 2006. A tool for estimating Best Management Practice effectiveness in Arkansas. Managing Agricultural Landscapes for Environmental Quality: Strengthening the Science Base. Soil and Water Conservation Society, Kansas City, MO. October 10–October 13.
40. Popp, J., G. Rodriguez, J. Pennington, E. Gbur, M. Steele, I. Chaubey, and **M. Gitau**. 2006. From conflict to cooperation: enlisting stakeholders to address water quality disputes in an

embattled watershed. *Managing Agricultural Landscapes for Environmental Quality: Strengthening the Science Base*. Soil and Water Conservation Society, Kansas City, MO. October 10–October 13.

41. **Gitau, M.W.**, W.J. Gburek, and T.L. Veith. 2006. Quantifying the effectiveness of phosphorus control BMPs using modeling and model-based approaches. SERA-17 Modeling Conference: Modeling Phosphorus Transport in Agroecosystems, Ithaca, NY. July 31–August 2. **Invited.**
42. **Gitau, M.W.**, and W.J. Gburek. 2005. Best Management Practice effects for phosphorus control on a dairy farm: The Cannonsville Reservoir Watershed, New York. ASAE Meeting Paper No. 052046. 2005 ASAE Annual International Meeting, Tampa, FL. July 17–July 20.
43. **Gitau, M.W.**, W.J. Gburek, and T.L. Veith. 2004. Optimizing selection and placement of BMPs: The Town Brook Watershed contribution to CEAP-WAS. Soil and Water Conservation Society 2004 Annual Conference, St. Paul, MN. July 24–July 28.
44. **Gitau, M.**, T. Veith, W. Gburek and A. Jarrett. 2004. Optimization of BMP selection and placement for phosphorus pollution control: Town Brook Watershed, New York. Northeast Agricultural and Biological Engineering Conference, University Park, PA. June 27–June 30.
45. **Gitau, M.W.**, T.L. Veith, and W.J. Gburek. 2003. Optimizing Best Management Practice selection to increase cost-effectiveness. American Society of Agricultural Engineers Meeting (ASAE) Paper No. 032110. 2003 ASAE Annual International Meeting, Las Vegas, NV. July 27–July 30.
46. **Gitau, M.W.**, W.J. Gburek, and A.R. Jarrett. 2003. Effects of BMPs on phosphorus loss: Town Brook Watershed, NY. Proceedings of the American Water Resources Association. 2003 International Water Congress, New York, NY. June 29–July 2.
47. **Gitau, M.W.**, W.J. Gburek, and A.R. Jarrett. 2002. Estimating Best Management Practice effects on water quality in the Town Brook Watershed, NY. Proceedings of the 2nd Federal Interagency Hydrologic Modeling Conference, Las Vegas, NV. July 28–August 1.
48. Sharpley, A., P. Kleinman, **M. Gitau**, W. Gburek, and R. Bryant. 2001. Modeling phosphorus movement from agriculture to surface waters. Integrated Nutrient Management Program Work Team Modeling Workshop Proceedings: Developing and applying next generation tools for farm and watershed nutrient management to protect water quality, Ithaca, NY. December 19–December 20.
49. **Gitau, M.W.**, E. Schneiderman, W.J. Gburek, and A.R. Jarrett. 2001. An evaluation of Best Management Practices installed in the Cannonsville Reservoir Watershed, New York. 9th National Non Point Source Monitoring Workshop, Indianapolis, IN. August 27–August 30.
50. **Gitau, M.W.**, E. Schneiderman, and W.J. Gburek. 2001. Incorporating Best Management Practices into the GWLF model. SERA-IEG 17 Annual Meeting, State College, PA. July 19–July 21.

## **INSTITUTIONAL SERVICE**

Engineering Library Committee

August 2017–present

Graduate Programs Committee

August 2016–present

ABET Committee	August 2016–present
Recruitment Committee	February 2016–present
Visiting Scholars Committee	February 2016–August 2016, August 2017–present
Faculty Research Awards Committee	August 2014
Curriculum Review Committee	November 2012–May 2015
Graduate Faculty Committee	November 2011–May 2015
1890s Capacity Building Grants Review Committee	2011 and 2012
Association of Research Directors (ARD) Symposium Committee	2010
Strategic Planning Committee	2009–2010
Center for Water and Air Quality Seminar Series Coordinator	2009
Joint Appointments Committee	2008–2009

## HONORS AND AWARDS

1. Outstanding Mentor of Engineering Graduate Students Award, Spring 2017, Purdue University, Department of Agricultural and Biological Engineering.
2. American Society of Agricultural and Biological Engineers recognition for Outstanding Service as Associate Editor, 2011, 2013, 2017.
3. USDA-NIFA National Water Program Project of Excellence, 2011.
4. Alpha Epsilon. Inducted 2000; Sigma Xi. Inducted 2006.
5. Journal of Soil and Water Conservation Honorable Mention Research Paper Award for Impact and Quality of a Paper Published Between 2004-2008.
6. Dean's Initial Achievement Award, College of Engineering Sciences, Technology, and Agriculture (CESTA), 2010.
7. Florida A&M University Faculty Senate Travel Grant, 2009.
8. USDA Grant Writing Workshops Travel Award, 2008.
9. USDA-ARS University Park Location Outstanding Paper – Fiscal year 2000-2003.
10. Awarded 3rd prize in engineering at the 17th Annual Graduate Research Exhibition, The Pennsylvania State University, 2002.
11. Swedish Agency for Research Cooperation in Developing Countries Scholar: 1993-1995.

## PROFESSIONAL ACTIVITIES

1. American Society of Agricultural and Biological Engineers (**ASABE**): Global Partnerships (**Inaugural Vice Chair**), Environmental Quality Coordinating (Past Chair 2014-2015, **Chair 2012-2014**, Member, Liaison); Erosion Control (Past Chair, **Chair and Program Chair 2013-2015**, Member, Liaison); Conservation Systems (**Chair 2011-2013**, Member); Hydrology (**Member**); Riparian Zones, Floodplains, and Wetlands (**Member**); Sustainable Land Resources (**Member**); Natural Resources and Environmental Systems Steering

- (**Member 2013-2015**); Nomenclature (**Member**); Publications (**Associate Editor**); Academic Program Administrators (**Member 2012-2015**); Annual International Meeting (**Session Moderator, Session Organizer**). ASABE Global Initiative Conference (**Organizing Committee, Program Committee, Session Co-Chair**).
2. **Associate Editor** ASABE Transactions, Applied Engineering in Agriculture (Recognition for **Outstanding Service** 2011, 2013, 2017).
  3. **Associate Editor** Journal of Soil and Water Conservation.
  4. **Member** American Water Resources Association.
  5. **Member** Soil and Water Conservation Society.
  6. **Member** International Association of Great Lakes Research.
  7. **Member** Advisory Board, Department of Agricultural and Biological Engineering, University of Florida (2012-2015; 2017 to present).
  8. **Member Scientific and Program Committees** – 2015 International Soil Conservation Organization (ISCO) Conference.
  9. **Member Scientific Committee**- 2015 International Soil and Water Assessment Tool (SWAT) Conference.
  10. **Member Program Committee and Session Co-Chair**- ASABE Global Initiative Conference: Engineering and Technology Innovation for Global Food Security.
  11. **Member Organizing and Program Committees**- ASABE Global Initiative Conference: Global Water Security.
  12. **Reviewer** ASABE Transactions, Journal of Soil and Water Conservation, Journal of the American Water Resources Association, Water Research, Environmental Modeling and Software, Computers and Electronics in Agriculture, Landscape and Urban Planning, Land, Journal of Environmental Quality, Journal of Environmental Management, Hong Kong Institute of Engineers Transactions, Water Resources Management.
  13. **Proposal Panelist** USDA NIFA. **Proposal Reviewer** Maryland Sea Grant, USDA Small Business Innovation Research Program (SBIR) program, National Institutes for Water Resources (NIWR), National Science Foundation (NSF), Multi-State Projects.
  14. USDA National Water Conference: (**Session Moderator**).
  15. USDA-NIFA National Water Program Theme Areas (**Member Watershed Assessment and Modeling, Watershed Education and Restoration areas**).
  16. Earth Care Connection: community women in conservation. **Founded and chaired** Northwest Arkansas Section (2006).
  17. **Member** COACH Assisting in the success and impact of women scientists and engineers.
  18. **Founder/President** Mentoring neTwork for African Women in Academia (MTAWA).