

## **Mazdak Arabi, PhD**

Professor and Borland Endowment Chair of Water Resources  
Civil and Environmental Engineering  
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### **EDUCATION**

2005 Ph.D., Purdue University  
2000 M.S., University of Tehran  
1998 B.S., University of Tehran

### **ACADEMIC POSITIONS**

2018 – Present Professor, Civil and Environmental Engineering, Colorado State University  
2013 – 2018 Associate Professor, Civil and Environmental Engineering, Colorado State University  
2009 – 2013 Assistant Professor, Civil and Environmental Engineering, Colorado State University  
2007 – 2009 Research Ass. Professor, Civil and Environmental Engineering, Colorado State University

### **OTHER POSITIONS**

2005-2007 Research Associate, Purdue University  
2001-2001 Graduate Research Assistant, Purdue University

### **Biography**

Dr. Arabi is the Borland Endowed Professor of Water Resources in the Department of Civil and Environmental Engineering (CEE) at Colorado State University (CSU). His research, education and engagement activities focus on the development of scientific approaches and analysis tools that enable integrated water resource management in a changing world. His primary expertise includes hydrologic assessment, watershed modeling, water quality control, and system identification and optimization.

He is the creator and currently serves as the director of the One Water Solutions Institute (OWSI). The mission of the institute is to solve real-world water challenges via cutting-edge research and innovation. OWSI coordinates synergistic activities at several multi-institutional research consortiums, including Urban Water Innovation Network (UWIN), CLEAN Nutrient Center, Urban Water Center, and Colorado Stormwater Center.

Dr. Arabi is the lead developer of the open-source software called the environmental Resource Assessment and Management System (eRAMS). The eRAMS technology enables development of computationally scalable and accessible online tools for sustainable management of land, water, and energy resources. eRAMS currently hosts more than 200 data, analytic, and modeling web services that are frequently accessed by users from academic institutions, governmental agencies, and the private sector. Currently, eRAMS tools are used in 40 countries around the world.

## **HONORS AND AWARDS**

- 2020 Wesley W. Horner Award, Outstanding Paper, Environmental and Water Resources Institute, ASCE-EWRI, Reston, VA
- 2020 Outstanding Faculty Performance Award, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2018 Borland Endowment Chair of Water Resources, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2016 George T. Abell Outstanding Mid-Career Faculty Award, College of Engineering, Colorado State University, Fort Collins, Colorado
- 2015 Faculty Award for Excellence in Research, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2015 Borland Endowment Professor of Water Resources, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2013 Outstanding Faculty Performance Award, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2012 Faculty Award for Excellence in Research, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2011 Dr Yevjevich's Faculty Award, Colorado State University
- 2010 Rudolph Hering Medal, Best Paper in Environmental Engineering, ASCE-EWRI, Reston, VA
- 2009 Faculty Award for Excellence in Research, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, Colorado
- 2005 Blooser Environmental Award, Purdue University, West Lafayette, Indiana
- 2005 Estus H. and Vashti L. Magoon Outstanding Teaching Award, College of Engineering, Purdue University, West Lafayette, Indiana
- 2004 Estus H. and Vashti L. Magoon Outstanding Teaching Award, College of Engineering, Purdue University, West Lafayette, Indiana
- 2004 Jacques W. Delleur Award, Purdue University, West Lafayette, Indiana

## **PUBLISHED WORKS**

### **Books:**

1. Osmond, D., D. Meals, D. Hoag, and M. Arabi, *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society, Akeney, IA, 387 pp, 2012.

### **Refereed Journal Articles:**

#### **In Review**

1. Alja'fari, J., S. Sharvelle, A. Branch, B. Pecson, B., M. Jahne, A. Olivieri, M. Arabi, J. Garland, and R. Gonzalez. Assessing Human-Source Microbial Contamination of Stormwater in the U.S. *Water Research*, in review.
2. Gharib, A., M. Arabi, C. Goemans, D. Manning, and A. Mass. Integrated land use planning and

water management under different water rights institutions: Methodology and application. *Water Resources Research*, in review.

3. MohammadZadeh, M., M. Arabi, S. Sharvelle, and T. Dell. A web-based urban hydrology model for municipal scale applications. *Environmental Modelling and Software*, in review.
4. Ghanbari, M., J. Huang, A. Luc, M. Arabi, J. Goldman-Torres, R. Byrne-Nash, S. Kane, R. Ferrell, T. Fielder, S. De Long, and C. Wilusz. View of an evolving pandemic: Changes in the relationship between clinical cases and levels of SARS-CoV-2 RNA in Colorado wastewater. *Environmental Science & Technology Water*, in review.

### 2023

5. Ghanbari, M., T. Dell, F. Saleh, Z. Chen, J. Cherrier, B. Colle, J. Hacker, L. Madaus, P. Orton, and M. Arabi. Compounding effects of changing sea level and rainfall regimes on pluvial flooding In New York City. *Natural Hazards*, accepted.
6. AghaKouchak, A., L. Huning, M. Sadegh, Y. Qin, Y. Markonis, F. Vahedifard, C. Love, A. Mishra, A. Mehran, R. Obringer, A. Hjelmst, S. Pallickara, S. Jiwa, M. Hanel, Y. Zhao, A. Pendergrass, M. Arabi, S. Davis, P. Ward, M. Svoboda, R. Pulwarty, and H. Kreibich. Toward impact-based drought monitoring: From indicators and processes to cascading hazards. *Nature Reviews Earth & Environment*, 4, 582–595, 2023.
7. Ghanbari, M., M. Arabi, M. Georgescu, and A. Broadbent. The role of climate change and urban development on future compound dry-hot extreme events across U.S. cities. *Nature Communications*, 14 (1), 3509, 2023.
8. Dezfooli, D., J. Bolson, M. Arabi, M. Sukop, I. Wiersema, and S. Millonig. A qualitative approach to understand transitions toward One Water in urban areas across North America. *Water*, 15, 2499, 2023.
9. Gharib, A., J. Blumberg, D. Manning, C. Goemans, and M. Arabi. Assessment of vulnerability to water shortage in semi-arid river basins: The value of demand reduction and storage capacity, *Science of The Total Environment*, 871, 161964, 2023.

### 2022

10. Cole, J., S. Sharvelle, and M. Arabi. Assessing uncertainty in multicriteria evaluation of centralized and decentralized dual water supply strategies, *ASCE Journal of Water Resources Planning and Management*, 148(12), 04022070. 2022.
11. Rainey, W., M. McHale, and M. Arabi, Characterization of co-benefits of green stormwater infrastructure across ecohydrologic regions in the United States. *Urban Forestry & Urban Greening*, 127514, 2022.
12. Warziniack, T., M. Arabi, T.C. Brown, P. Froemke, R. Ghosh, S. Rasmussen, and R. Swartzentruber, Projections of freshwater use in the United States under climate change. *Earth's Future*, 10, e2021EF002222, 2022.
13. Olson, C., M. Ghanbari, M. Arabi, and L. Roesner, Appraisal of steady-state stormwater control measure pollutant removal models within a dynamic stormwater routing framework, *ASCE Journal of Water Resources Planning and Management*, 148(4), 04020052, 2022.

### 2021

14. Georgescu, M., M. Arabi, M.T. Chow, E. Mack, and K. Seto, Focus on sustainable cities: urban solutions toward desired outcomes, *Environmental Research Letters*, 16 120201, 2021.
15. Heidari, H., M. Arabi, and T. Warziniack, Vulnerability to water shortage under current and future water supply-demand conditions across U.S. river basins, *Earth's Future*, 9, e2021EF002278, 2021.
16. Heidari, H., M. Arabi, and T. Warziniack, Effects of climate change on natural-caused fire activity in

- Western U.S. national forests, *Atmosphere*, 12 (8) 981, 2021.
17. Dell, T., M. Razzaghmanesh, S. Sharvelle, and M. Arabi, Development and Application of a SWMM-Based Simulation Model for Municipal Scale Hydrologic Assessments, *Water*, 13 (12), 1644, 2021.
  18. Heidari, H., M. Arabi, T. Warziniack, and S. Sharvelle, Effects of urban development patterns on municipal water shortage, *Frontier Water*, 3:694817, 2021.
  19. Chinnasamy, C.V., M. Arabi, S. Sharvelle, T. Warziniack, C.D. Furth, and A. Dozier, Characterization of Municipal Water Uses in the Contiguous United States, *Water Resources Research*, 57, e2020WR028627, 2021.
  20. Heidari, H., M. Arabi, T. Warziniack, and S.C. Kao, Shifts, Shifts in hydroclimatology of U.S. megaregions in response to climate change, *Environmental Research Communications*, 3 065002, 2021.
  21. Ghanbari, M., M. Arabi, M., S.C. Kao, J. Obeysekera, J., and W. Sweet, Climate change and changes in compound coastal-riverine flooding hazard along the U.S. coasts, *Earth's Future*, 9, e2021EF002055, 2021.
  22. Aliyari, F., R. Bailey, and M. Arabi, Appraising climate change impacts on future water resources and agricultural productivity in agro-urban river basins, *Science of the Total Environment*, 788, 147717, 2021.
  23. Veettil, A.V., T.R. Green, M. Arabi, H. Kipka, N. Lighthart, J. Clary, and K. Douglas-Mankin, Fully distributed versus semi-distributed process simulation of a highly managed watershed with mixed land use and irrigation return flow, *Environmental Modeling & Software*, 140, 105000, 2021.
  24. Heidari, H., T. Warziniack, T. Brown, and M. Arabi, Impacts of climate change on hydroclimatic conditions of US national forests and grasslands, *Forests*, 12(2): 139, 2021.

## 2020

25. Heidari, H., M. Arabi, T. Warziniack, and S.C. Kao, Assessing shifts in regional hydroclimatic conditions of U.S. river basins in response to climate change over the 21st century, *Earth's Future*, 8 (10), e2020EF001657, 2020.
26. Neale, M., S. Sharvelle, M. Arabi, A. Dozier, and C. Goemans, Assessing tradeoffs of urban water demand reduction strategies, *Journal of Hydrology*, 8: 100059, 2020.
27. Ahmad, N., M. Chester, E. Bondank, M. Arabi, N. Johnson, and B. Ruddell, A synthetic water distribution network model for urban resilience, *Sustainable and Resilient Infrastructure*, 1-15, 2020.
28. Heidari, H., M. Arabi, M. Ghanbari, and T. Warziniack, Probabilistic approach for characterization of sub-annual socioeconomic drought intensity-duration-frequency (IDF) relationships in a changing environment, *Water*, 12(6), 1522, 2020.
29. Shortle, J.S., J.R. Mihelcic, Q. Zhang, and M. Arabi, Nutrient control in water bodies: A systems approach, *Journal of Environmental Quality*, 49(3) 517-533, 2020.
30. Olson, C., M. Arabi, T. Dell, and L. Roesner, Probabilistic assessment of extended detention basins: Role of model parameter uncertainty, *ASCE Journal of Water Resources Planning and Management*, 146(8), 04020052, 2020.
31. Ghanbari, M., M. Arabi, and J. Obeyakara, Chronic and acute coastal flood risks to assets and communities in Southeast Florida, *ASCE Journal of Water Resources Planning and Management*, 2020, 146(7): 04020049, 2020.
32. Heidari, H., M. Arabi, M. Ghanbari, and T. Warziniack, A probabilistic approach for characterization of sub-annual socioeconomic drought intensity-duration-frequency (IDF) relationships in a changing environment, *Water*, 12 (6): 1522, 2020.
33. Hodgson, B., T. Dell, S. Sharvelle, M. Arabi, Assessing cost-effective nutrient removal solutions in the urban water system, *Journal of Environmental Quality*, 49(3): 534-544, 2020.

34. Zhang, Y., M. Arabi, and K. Paustian, Analysis of parameter uncertainty in model simulations of irrigated and rainfed agroecosystems, *Environmental Modeling & Software*, 126, 104642, 2020.
35. Maas A., C. Goemans, D. Manning, and M. Arabi, Complements of the house: Estimating demand-side linkages between residential water and electricity, *Water Resources and Economics*, 29: 100140, 2020.

#### 2019

36. Daigger, G., S. Sharvelle, M. Arabi, and N. Love, Progress and promise transitioning to the one water/resource recovery integrated urban water management systems, *ASCE Journal of Environmental Engineering*, 145 (10), 04019061, 2019.
37. Aliyari, F., M. Arabi, R.T. Bailey, A. Dozier, A. Tasdighi, and K. Zeiler, Coupled SWAT-MODFLOW model for large-scale mixed agro-urban river basins, *Environmental Modeling & Software*, 115, 200-210, 2019.
38. Ghanbari, M., M. Arabi, J. Obeyesakara, and W. Sweet, A coherent statistical model for coastal flood frequency analysis under nonstationary sea level conditions, *Earth's Future*, 7 (2), 162-177, 2019.
39. Wei, X., R. Bailey, R. Records, T. Wible, and M. Arabi, Comprehensive simulation of nitrate transport in coupled surface-subsurface hydrologic systems using the linked SWAT-MODFLOW-RT3D model, *Environmental Modeling & Software*, 2019, 122, 104242.

#### 2018

40. Tasdighi A., M. Arabi, D. Harmel, and D.A. Line, A Bayesian total uncertainty estimation framework for assessing the effects of water quality control strategies, *Environmental Modeling & Software*, 108, 240-252, 2018.
41. Tasdighi A., M. Arabi, and D. Harmel, A probabilistic appraisal of rainfall-runoff modeling approaches within SWAT in mixed land use watersheds, *Journal of Hydrology*, 564, 476-489, 2018.
42. Duru, U., M. Arabi, and E. Wohl, Modeling sediment yield using the SWAT model: A case study of Upper Ankara River basin, Turkey, *Physical Geography*, 39 (3), 264-289, 2018.
43. Bolson, J., M. Sukop, M. Arabi, G. Pivo, and A. Lanier, A stakeholder-science based approach to analyzing the state of urban water sustainability in the U.S., *Water Resources Research*, 54 (5), 3453-3471, 2018.
44. Motallebi, M., D. Hoag, A. Tasdighi, M. Arabi, D. Osmond, and R. Boone, The impact of relative individual ecosystem demand on stacking ecosystem credit markets, *Ecosystem Services*, 29: 137-144, 2018.
45. Havel A., M. Arabi, and A. Tasdighi, Assessing the hydrologic response to wildfires using watershed modeling, *Hydrology and Earth System Sciences*, 22 (4), 2527, 2018.

#### Prior to 2018

46. Sharvelle, S., A. Dozier, M. Arabi, and B. Reichel, A geospatially-enabled web tool for urban water demand forecasting and assessment of alternative urban water management strategies, *Environmental Modeling & Software*, 97: 213-228, 2017.
47. Duru, U., E. Wohl, and M. Arabi, Modeling sediment yield using the SWAT model: A case study of Upper Ankara River basin, Turkey, *Catena*, DOI: 10.1080/02723646.2017.1342199, 2017.
48. Maas, A., D. Manning, C. Goemans, S. Kroll, and M. Arabi, Evaluating the effect of conservation motivations on residential water demand, *Journal of Environmental Management*, 196(1): 394-401, 2017.
49. Dozier, A., M. Arabi, B. Wostoupal, C. Goemans, Y. Zhang, and K. Paustian, Water management tradeoffs and targets for the agricultural sector in rapidly urbanizing semi-arid regions, *Environmental Research Letters*, 12 (2017) 085005, 2017.

50. Hoag, D., M. Arabi, D. Osmond, M. Ribaud, M. Motallebi, and A. Tasdighi, Finding a pollution credit trading utopia for nutrients? *JAWRA*, 53(3): 514-520.
51. Motallebi, M., A. Tasdighi, D. Hoag, M. Arabi, and D. Osmond, An economic inquisition of water quality trading programs, with a Case Study of Jordan Lake, NC, *Journal of Environmental Management*, 193(15): 483-490, 2017.
52. Tasdighi, A., M. Arabi, and D. L. Osmond, The relationship between land use and vulnerability to nitrogen and phosphorus pollution in an urban watershed, *J. Environ. Qual.*, 46(1):113-122, 2017.
53. Garner, E., J. Wallace, G.A. Argoty, C. Wilkinson, N. Fahrenfeld, L. Heath, L. Zhang, M. Arabi, D. Aga, and A. Pruden, "Metagenomic profiling of historic Colorado Front Range flood impact on distribution of riverine antibiotic resistance genes. *Sci. Rep.* 6, 38432; doi: 10.1038/srep38432, 2016.
54. Bailey, R., Wible, T., M. Arabi, R. Records, and J. Ditty, Assessing regional scale spatiotemporal patterns of groundwater-surface water interactions using a coupled SWAT-MODFLOW model, *Hydrological Processes*, 30 (23), 4420-4433, 2016.
55. Records, R., E. Wohl, and M. Arabi, Phosphorus in the river corridor, *Earth-Science Reviews*, Volume 158, Pages 65-88, 2016.
56. Dozier, A., O. David, M. Arabi, W. Lloyd, and Y. Zhang, A minimally invasive model data passing interface for integrating legacy environmental system models, *Environmental Modelling & Software*, 80, 265280, 2016.
57. Kipka, H., T. Green, O. David, L. Garcia, J. Ascough, and M. Arabi, Development of the Land-use and Agricultural Management Practice web-Service (LAMPS) for generating crop rotations in space and time, *Soil and Tillage Research*, 155:233-249, 2016.
58. Hill, M., D. Kavetski, M. Clark, M. Ye, M. Arabi, D. Lu, L. Foglia, and S. Mehl, Practical use of computationally frugal model analysis methods, *Groundwater*, 54 (2): 159-170, 2016.
59. Arnold, J., M. Youssef, H. Yen, M. White, A. Sheshukov, A. Sadeghi, D. Moriasi, J. Steiner, D. Amatya, R. Skaggs, E. Haney, J. Jeong, M. Arabi, and P. Gowda, Hydrological processes and model representation: Impact of soft data on calibration, *Transactions of the ASABE*, 58 (6): 1637-1660, 2015.
60. Bailey, R., M. Ahmadi, T. Gates, and M. Arabi, Spatially distributed influence of agro-environmental factors governing nitrate fate and transport in an irrigated stream-aquifer system, *Hydrol. Earth Syst. Sci.*, 19: 4859-4876, 2015.
61. Wallace, C., R. Bailey, and M. Arabi, Rainwater catchment system design using simulated future climate data, *Journal of Hydrology*, 529 (3): 1798-1809, 2015.
62. Lloyd, W., S. Pallickara, O. David, M. Arabi, T. Wible, and J. Ditty, Demystifying the Clouds: Harnessing resource utilization models for cost effective infrastructure alternatives, *IEEE Transactions on Cloud Computing*, 5 (4), 667-680, 2015.
63. Bartlett, A., A. Andales, M. Arabi, and T. Bauder, A smartphone app to extend use of a cloud-based irrigation scheduling tool, *Computers and Electronics in Agriculture*, 111, 127-130, 2015.
64. Yen, H., M. White, J. Jeong, M. Arabi, and J. Arnold, Evaluation of Alternative Surface Runoff Accounting Procedures Using the SWAT Model, *Int. J. Agric. & Biol. Eng.*, 2015 8(1), 2015.
65. Foy, C., M. Arabi, H. Yen, J. Gironas, and R. Bailey, A multi-site assessment of hydrologic processes in snow-dominated mountainous watersheds in Colorado, *J. Hydrol. Eng.*, 20 (10), 04015017, 2015.
66. Records, R.M., M. Arabi, S. Fassnacht, W.G. Duffy, M. Ahmadi, and K.C. Hegewisch, Climate change and wetland loss impacts on a Western river's water quality, *Hydrology and Earth System Sciences, Hydrol. Earth Syst. Sci.*, 18, 4509-4527, 2014.
67. Yen, H., J. Jeong, W. Tseng, M. Kim, R. Records, and M. Arabi, Computational procedure for evaluating sampling techniques on watershed model calibration, *J. Hydrol. Eng.*, 20(7), 04014080,

- 2014.
68. Ahmadi, M., M. Arabi, J. Ascough, D. Fontane, and B. Engel, Toward improved calibration of watershed models: Multisite many-objective measures of information, *Environmental Modelling & Software*, 59:135-145, 2014.
  69. Ahmadi, M., M. Arabi, D. G. Fontane, and B. Engel, Application of multi criteria decision analysis with a priori knowledge to identify optimal type and placement of conservation practices, *Water Resour. Plann. Manage.*, 141(2), 04014054, 2014.
  70. Ahmadi, M., J. C. Ascough II, K. C. DeJonge, and M. Arabi, Multisite-multivariable sensitivity analysis of distributed watershed models: enhancing the perceptions from computationally frugal methods, *Ecological Modelling*, 279 (2014) 54–67, 2014.
  71. Sanadhya, P., J. Gironás, and M. Arabi, Global sensitivity analysis of hydrologic processes in major snow-dominated mountainous river basins in Colorado, *Hydrological Processes*, 28(9): 3404–3418. doi: 10.1002/hyp.9896, 2014.
  72. Ahmadi, M., R. Records, and M. Arabi. Impact of climate change on diffuse pollutant fluxes at the watershed scale, *Hydrological Processes*, 28(4) 1962-1972, 2014.
  73. Yen, H., X. Wang, D. Fontane, D. Harmel, and M. Arabi. A framework for propagation of uncertainty contributed by parameterization, input data, model structure, and calibration/validation data in watershed modeling. *Environmental Modelling & Software*. 54(2014) 211-221, 2014.
  74. Williams, R., M. Arabi, J. Loftis, and K. Elmund, Monitoring design for assessing compliance with numeric nutrient standards for rivers and streams using geospatial variables, *Journal of Environmental Quality*, 43(5):1713-1724, 2014.
  75. Yen, H., R. Bailey, M. Arabi, M. Ahmadi, M. White, and J. Arnold, The role of interior watershed processes in improving parameter estimation and performance of watershed models, *Journal of Environmental Quality*, 43(5):1601-1613, 2014.
  76. Ahmadi, M., M. Arabi, D. Hoag, and B. Engel, A mixed discrete-continuous variable multiobjective genetic algorithm for targeted implementation of nonpoint source pollution control practices, *Water Resources Research*, 49(12) 8344-8356, 2013.
  77. Lloyd, W., S. Pallickara, O. David, J. Lyon, M. Arabi, and K. Rojas, Performance implications of multi-tier application deployments on Infrastructure-as-a-Service clouds: Towards performance modeling. *Future Generation Computer Systems*, 29(5) 1254-1264, 2013.
  78. Son, J.H., C. Cowley, S. Goodwin, M. Arabi, and K. Carlson, Relative phosphorus load inputs from wastewater treatment plants in a northern Colorado watershed, *Journal of Environmental Quality*, 42(2) 497-506, 2013.
  79. DeJonge, K.C., J.C. Ascough, A.A. Andales, N.C. Hansen, L.A. Garcia, and M. Arabi, Improving evapotranspiration simulations in the CERES-Maize model under limited irrigation, *Agricultural Water Management*, 115:92-103, 2012.
  80. Pruden, A., M. Arabi, and H.N. Storteboom, Correlation of upstream human activities with riverine antibiotic resistance genes, *Environmental Science and Technology*, 46 (26): 11541-11549, 2012.
  81. Osmond, D., D. Meals, D. Hoag, M. Arabi, A. Luloff, G. Jennings, M. McFarland, J. Spooner, A. Sharpley, and D. Line, Improving conservation practices programming to protect water quality in agricultural watersheds: Lessons learned from the National Institute of Food and Agriculture–Conservation Effects Assessment Project, *Journal of Soil and Water Conservation*, 67 (5):122-127, 2012.
  82. DeJonge, K.C., J. Ascough II, M. Ahmadi, A. Andales, and M. Arabi, Global sensitivity and uncertainty analysis of a dynamic agroecosystem model under different irrigation treatments, *Ecological Modelling*, 231:113-125, 2012.
  83. Hidalgo, I., D. Fontane, M. Arabi, J.G. Lopez, J. Andrade, and L. Ribeiro, Evaluation of optimization algorithms to adjust efficiency curves for hydroelectric generating units, *ASCE Journal of Energy*

- Engineering*, 138(4):172–178, 2012.
84. Maringanti, C., I. Chaubey, M. Arabi, and B. Engel, Application of a multi-objective optimization method to provide least cost alternatives for NPS pollution control, *Environmental Management*, 48:448-461, 2011.
  85. Ruark, M.D., J.D. Niemann, B.P. Greimann, and M. Arabi., A Method for Assessing Impacts of Parameter Uncertainty in Sediment Transport Modeling Applications, *ASCE Journal of Hydraulic Engineering*, 137(6):623-636, 2011.
  86. Storteboom, H.N., M. Arabi, J.G. Davis, B. Crimi, and A. Pruden, Identification of antibiotic-resistance-gene molecular signatures suitable as tracers of pristine river, urban, and agricultural sources, *Environ. Sci. Technol.*, 44(6):1947-1953, 2010.
  87. Storteboom, H.N., M. Arabi, J.G. Davis, B. Crimi, and A. Pruden, Tracking antibiotic resistance genes in the South Platte River Basin using molecular signatures of urban, agricultural, and pristine sources, *Environ. Sci. Technol.*, 44(19):7397-7404, 2010.
  88. Sharvelle, S., M. Arabi, E. McLamore, and K. Banks, Mathematical model for a biotrickling filter treatment of graywater and waste gas: Part I., *Journal of Environmental Engineering*, 134(10): 813, 2008.
  89. Sharvelle, S., M. Arabi, K. Banks, and F. Mannering, Model sensitivity analysis for biotrickling filter treatment of graywater and waste gas: Part II, *Journal of Environmental Engineering*, 134(10):826, 2008.
  90. Arabi, M., J.R. Frankenberger, B. Engel, and J.G. Arnold, Representation of agricultural management practices with SWAT, *Hydrological Processes*, 22:3042-3055, 2008.
  91. Merwade, V., F. Olivera, M. Arabi, and S. Edleman, Uncertainty in flood inundation mapping - Current issues and future directions, *ASCE Journal of Hydraulic Engineering*, 13(7):608-620, 2008.
  92. Thomas, M.A., B. A. Engel, M. Arabi, T. Zhai, R. Farnsworth, and J. Frankenberger, Evaluation of nutrient management plans using an integrated modeling approach, *Applied Engineering in Agriculture*, 23(6):747-755, 2007.
  93. Engel, B., D. Storm, M. White, J. Arnold, and M. Arabi, A hydrologic/water quality model application protocol, *Journal of the American Water Resources Association*, 43(5):1223-1236, 2007.
  94. Arabi, M., R.S. Govindaraju, B. Engel, and M. Hantush, Multiobjective sensitivity analysis of sediment and nutrient processes with a watershed model, *Water Resources Research*, 43, W06409, 2007.
  95. Arabi, M., R.S. Govindaraju, and M. Hantush, A probabilistic approach for analysis of uncertainty in evaluation of watershed management practices, *Journal of Hydrology*, 333:459-471, 2007.
  96. Arabi, M., R.S. Govindaraju, and M. Hantush, and B. Engel, Role of watershed subdivision on evaluation of long-term impact of best management practices on water quality, *Journal of the American Water Resources Association*, 42(2): 513-528, 2006.
  97. Arabi, M., J.S. Schmidt, and R.S. Govindaraju, A process-based transfer function approach to model tile drain hydrographs, *Hydrological Processes*, 20:3105-3117, 2006.
  98. Arabi, M., R.S. Govindaraju, and M. Hantush, Cost-effective allocation of watershed management practices using a genetic algorithm, *Water Resources Research*, 42, W10429, 2006.
  99. Bracmort, K., M. Arabi, J.R. Frankenberger, B. Engel, and J.G. Arnold, Modeling long-term water quality impact of structural BMPs, *Transactions of the ASABE*, 49(2):367-374, 2006.
  100. Shirmohammadi, A., I. Chaubey, R.D. Harmel, D.D. Bosch, R. Muñoz-Carpena, C. Dharmasri, A. Sexton, M. Arabi, M.L. Wolfe, J. Frankenberger, C. Graff, and T.M. Sohrabi, Uncertainty in TMDL Models, *Transactions of the ASABE*, 49(4):1033-1049, 2006.



## Refereed Chapters in Books:

1. Dozier, A., M. Arabi, J. Labadie, and D. Fontaine, Chapter 23: Optimization Methods in *Handbook of Applied Hydrology, 2nd Edition*, V.J. Singh (Edt.), 2016.
2. Andales, A., T. Bauder, and M. Arabi, A Mobile Irrigation Water Management System Using a Collaborative GIS and Weather Station Networks, in *Practical Applications of Agricultural System Models to Optimize the Use of Limited Water*, L. Ahuja et al. (Edts), ACSESS DL, Madison, WI.
3. Salas, J.D., R. Govindaraju, M. Anderson, M. Arabi, F. Frances, W. Suarez, W. Lavado, T.R. Green. 2014. Introduction to hydrology. In: *Modern Water Resources Engineering*, Wang, L.K. and Yang, R.S.H. (Eds), *Handbook of Environmental Engineering*, Vol. 15:1-126. 805 pp.
4. D.L. Osmond, D.W. Meals, D.L.K. Hoag, M. Arabi, A.E. Luloff, G.D. Jennings, M.L. McFarland, J. Spooner, A.N. Sharpley, and D.E. Line, 2012, Introduction and Approach to Synthesis of Lessons Learned: National Institute of Food and Agriculture–Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 1.
5. Arabi, M., D.W. Meals, and D.L.K. Hoag, 2012, Watershed Modeling: National Institute of Food and Agriculture–Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 5.
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8. Osmond, D.L., P. Gassman, K. Schilling, C. Wolter, C.L. Kling, M. Helmers, T. Isenhardt, W. Simpkins, T. Moorman, M. Tomer, S. Rabotyagov, M. Jha, D.L.K. Hoag, D.W. Meals, and M. Arabi, 2012, Walnut Creek and Squaw Creek Watersheds, Iowa: National Institute of Food and Agriculture–Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 11.
9. Osmond, D.L., J. Boll, E.S. Brooks, J.D. Wulfhorst, R. Mahler, L.W. Van Tassell, M. Arabi, and D.L.K. Hoag, 2012, Paradise Creek Watershed, Idaho: National Institute of Food and Agriculture–Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 12.
10. Osmond, D.L., Tedesco, R. Turco, L. Prokopy, J. Frankenberger, G. Shively, M. Arabi, J. Wilson, D.L.K. Hoag, and D.W. Meals, 2012, Eagle Creek Watershed, Indiana: National Institute of Food and Agriculture–Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 13.
11. Osmond, D.L., N. Nelson, K. Douglas-Mankin, M. Langemeier, D. Devlin, P. Barnes, T. Selfa, L.

- French, D.W. Meals, M. Arabi, and D.L.K. Hoag, 2012, Cheney Lake Watershed, Kansas: National Institute of Food and Agriculture– Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 14.
12. Arabi, M., C. Baffaut, E.J. Sadler, S.H. Anderson, R.R. Broz, D.W. Meals, D.L.K. Hoag, and D.L. Osmond, 2012, Goodwater Creek Watershed, Missouri: National Institute of Food and Agriculture– Conservation Effects Assessment Project, in *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The NIFA-CEAP Experience*, Soil and Water Conservation Society. Akeney, IA, ch. 15.
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#### **Refereed Proceedings/Transactions:**

1. Mitra, S., M. Warushavithana, M. Arabi, J. Breidt, S. Pallickara, and S. Pallickara, Alleviating resource requirements for spatial deep learning workloads, 22nd IEEE International Symposium on Cluster, Cloud and Internet Computing (CCGrid), pp. 452-462, doi: 10.1109/CCGrid54584.2022.00055, 2022.
2. Warushavithana, M., C. Carlson, S. Mitra, D. Rammer, M. Arabi, J. Breidt, S.L. Pallickara, and S.A. Pallickara. Distributed Orchestration of Regression Models Over Administrative Boundaries. Proceedings of the IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT), Leicester, UK. 2021.
3. Warushavithana, M., S. Mitra, M. Arabi, J. Breidt, S.L. Pallickara, and S.A. Pallickara. Containerization of Model Fitting Workloads over Spatial Datasets. Big Spatial Data at the IEEE Big Data Conference. 2021.
4. Warushavithana, M., S. Mitra, M. Arabi, J. Breidt, S.L. Pallickara, and S.A. Pallickara. A Transfer Learning Scheme for Time Series Forecasting Using Facebook Prophet. Proceedings of the 2021 IEEE International Conference on Cluster Computing (CLUSTER). pp 809-810. 2021.
5. Lloyd, W., S. Pallickara, O. David, M. Arabi, and K. Rojas, Mitigating Resource Contention and Heterogeneity in Public Clouds for Scientific Modeling Services. *Proceedings of the IEEE*

- International Conference on Cloud Engineering (IC2E)*. IEEE, April 4-7, 2017.
6. Lloyd, W., S. Pallickara, O. David, M. Arabi, and K. Rojas, Dynamic Scaling for Service Oriented Applications: Implications of Virtual Machine Placement on IaaS Clouds, in Proceedings of the 2014 IEEE International Conference on Cloud Engineering (IC2E '14), March 10-14, 2014, Boston, MA.
  7. Lloyd, W. S. Pallickara, O. David, J. Lyon, M. Arabi, and K. Rojas. Service Isolation vs. Consolidation: Implications for IaaS Cloud Application Deployment. Proceedings of the IEEE Conference on Cloud Engineering. pp 21-30. San Francisco, CA. 2013.
  8. Lloyd, W., S. Pallickara, O. David, J. Lyon, M. Arabi, and K. Rojas, 2012, Performance modeling to support multi-tier application deployment to infrastructure-as-a-service clouds, UCC 2012, Proceedings of the 5th IEEE/ACM International Conference on Utility and Cloud Computing, Utility and Cloud Computing, Chicago, Illinois, USA.
  9. Hill, M., D. Kavetski, M. Clark, M. Ye, and M. Arabi. Enhanced transparency and refutability in modeling environmental systems. Computational Methods in Water Resources (CMWR) 2012, Special Session on: Linking Observation and Prediction: Frameworks for Data Assimilation, Uncertainty Analysis, and Valuing Information, June 17-21, 2012, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL. 2012.
  10. Sanadhya, P., M. Ahmadi, and M. Arabi. GIS application of SWAT-hydrologic modeling in major river basins of Colorado. AWRA 2012 Spring Specialty Conference, New Orleans, LA, March 26-28, 2012.
  11. Lloyd, W., S. Pallickara, O. David, J. Lyon, M. Arabi, and K. Rojas, 2011, Migration of multi-tier applications to infrastructure-as-a-service clouds: An investigation using Kernel-based virtual machines, GRID 2011, Proceedings of the 2011 IEEE/ACM 12th International Conference on Grid Computing. IEEE Computer Society Washington, DC, USA.
  12. Arabi, M., R.S. Govindaraju, B. Engel, and M.M. Hantush, 2007, Optimization tool for allocation of watershed management practices for sediment and nutrient control, WATERMATEX 2007, 7th International Water Association Symposium on Systems Analysis and Integrated Assessment in Water Management, Washington DC, May 7-9, 2007.
  13. Arabi, M., R.S. Govindaraju, M.M. Hantush, and B. Engel, 2005, Role of watershed subdivision on evaluation of long-term impact of best management practices on water quality, Water Environment Federation, Philadelphia, PA, June 26th-June30th, 2005.

**Non-Refereed Journal Articles/Chapters/Proceedings/Transactions:**

1. Osmond, D., M. Arabi, C. O'Connell, D. Hoag, D. Line, M. Motallebi, and A. Tasdighi, Integrated research-water quality, sociological, economic, and modeling-in a regulated watershed: Jordan Lake, NC. In: Stringer, Christina E.; Krauss, Ken W.; Latimer, James S., eds. 2016. Headwaters to estuaries: advances in watershed science and management-Proceedings of the Fifth Interagency Conference on Research in the Watersheds, March 2-5, 2015, North Charleston, South Carolina. e-General Technical Report SRS-211. Asheville, NC: US Department of Agriculture Forest Service, Southern Research Station. 302 p, 2016.
2. Osmond, D., M. Arabi, D. Hoag, G. Jennings, D. Line, A. Luloff, M. McFarland, D. Meals, and A. Sharpley, Managing watersheds to change water quality: lessons learned from the NIFA-CEAP watershed studies, In: Stringer, Christina E.; Krauss, Ken W.; Latimer, James S., eds. 2016. Headwaters to estuaries: advances in watershed science and management-Proceedings of the Fifth Interagency Conference on Research in the Watersheds. March 2-5, 2015, North Charleston, South Carolina. e-General Technical Report SRS-211. Asheville, NC: US Department of Agriculture

- Forest Service, Southern Research Station. 302 p, 2016.
3. Dozier, A., O. David, Y. Zhang, and M. Arabi, MODPI: A parallel model data passing interface for integrating legacy environmental system models, International Environmental Modelling and Software Society (iEMSs), Proceedings of 7th Int. Congress on Env. Modelling and Software, Daniel P. Ames, Nigel W. T. Quinn, and Andrea E. Rizzoli (Eds.), June 15-19, 2014, San Diego, CA.
  4. Lloyd, W., O. David, M. Arabi, J. Ascough II, T. Green, et al., The Virtual Machine (VM) Scaler: An Infrastructure Manager Supporting Environmental Modeling on IaaS Clouds, International Environmental Modelling and Software Society (iEMSs), Proceedings of 7th Int. Congress on Env. Modelling and Software, Daniel P. Ames, Nigel W. T. Quinn, and Andrea E. Rizzoli (Eds.), June 15-19, 2014, San Diego, CA.
  5. David, O., W. Lloyd, K. Rojas, M. Arabi, F. Geter, J. Ascough, T. Green, G. Leavesley, and J. Carlson, Model-as-a-Service (MaaS) using the Cloud Services Innovation Platform (CSIP), International Environmental Modelling and Software Society (iEMSs), Proceedings of 7th Int. Congress on Env. Modelling and Software, Daniel P. Ames, Nigel W. T. Quinn, and Andrea E. Rizzoli (Eds.), June 15-19, 2014, San Diego, CA.
  6. Ditty, J., P. Allen, O. David, J. Arnold, M. White, and M. Arabi, Deployment of SWAT-DEG as a web infrastructure utilizing cloud computing for stream restoration, International Environmental Modelling and Software Society (iEMSs), Proceedings of 7th Int. Congress on Env. Modelling and Software, Daniel P. Ames, Nigel W. T. Quinn, and Andrea E. Rizzoli (Eds.), June 15-19, 2014, San Diego, CA.
  7. Wible, T., W. Lloyd, O. David, and M. Arabi, Cyberinfrastructure for scalable access to stream flow analysis, International Environmental Modelling and Software Society (iEMSs), Proceedings of 7th Int. Congress on Env. Modelling and Software, Daniel P. Ames, Nigel W. T. Quinn, and Andrea E. Rizzoli (Eds.), June 15-19, 2014, San Diego, CA.
  8. Lipscomb, E., B. Badgley, L. Krometis, W. Hession, M. Arabi, D. Aga, E. Van Wagoner, R. Benitez, E. Schaberg, and A. Pruden, Effects of storm events on transport of antibiotic resistance genes in surface water and sediment: field studies in Colorado and Virginia, Fourth International Conference on Emerging Contaminants in the Environment, August 19-22, Iowa City, IA, USA.
  9. Wallace, J., E. Lipscomb, M. Arabi, A. Pruden, and D.S. Aga, Fate and transport of antibiotics and antibiotic resistance genes during historic Colorado flooding, Proceedings of the Society of Environmental Toxicology and Chemistry annual meeting, November 12, 2014, Vancouver, Canada.
  10. Smith, M., M. Arabi, and C. Goemans, 2012, Quantifying Relationship between Irrigation Activities and Wetlands in a Northern Colorado Watershed and Assessing Added Value of Irrigation Waters, Colorado Water, Newsletter of the Water Center of Colorado State University, May/June 2012, Volume 29, Issue 3, 2-6.
  11. Arabi, M., 2011, environmental Risk Assessment and Management System (eRAMS), Colorado Water, Newsletter of the Water Center of Colorado State University, January/February 2011 Volume 28, Issue 1, 15-17.
  12. Arabi, M., 2008, Analysis of uncertainty in evaluation of watershed management practices, Proceedings of the World Environmental & Water Resources Congress 2008, Honolulu, Hawaii, May 2008.
  13. Arabi, M., R.S. Govindaraju, B. Engel, J. Frankenberger, and M. Hantush, 2007, Sensitivity analysis of sediment processes with SWAT, Proceedings of the 4th International SWAT Conference, UNESCO-IHE, Institute for Water Education, Delft, the Netherlands, July 4-6, 2007.
  14. Arabi, M., J.R. Frankenberger, B. Engel, and C. Baffaut, 2006, Representation of Agricultural BMPs with SWAT, Proceedings of the 2006 ASABE Annual International Meeting, July 9-12 Portland, Oregon.

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17. Arabi, M., R.S. Govindaraju, and M. Hantush, 2004, Examination of the role of physical resolution and scale on sediment and nutrient yields, Proceedings of the World Water and Environmental Resources Congress, ASCE, Salt Lake City, NV, June 27th-July 1st, 2004.

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1. Warziniack, T., M. Arabi, P. Froemke, R. Ghosh, H. Heidari, S. Rasmussen, and R. Swarzenruber, 2023, Water yield projections due to climate variability and change in the United States for current and mid-century periods: A 2020 RPA Assessment, Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2023-0003>.
2. Ahmadi, M. and M. Arabi, 2015, Assessment of Agricultural Conservation Practices in Arkansas Watersheds: Bayou Meto and Cache River Watersheds, Arkansas NRCS, Little Rock, AR.
3. Ahmadi, M. and M. Arabi, 2015, Assessment of Agricultural Conservation Practices in Arkansas Watersheds: Bayou Macon and Lower St. Francis Watersheds, Arkansas NRCS, Little Rock, AR.
4. Arabi, M., R.S. Govindaraju, and M. Hantush, 2007, Watershed Management Tool for Selection and Spatial Allocation of Nonpoint Source Pollution Control Practices- Final Report, National Risk Management Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, OH 45268, 104 pp.
5. Arabi, M., R.S. Govindaraju, and M. Hantush, 2004, Source identification of sediments and nutrients in watersheds- Final report, EPA/600/R-05/080, National Risk Management Research Laboratory, Office of Research and Development, U.S. EPA, Cincinnati, OH, 120 pp.

**CONTRACTS & GRANTS**

**Externally Funded Projects as PI**

- 2023 – 2026 "Colorado Construction Stormwater Permits Training and Colorado Stormwater Symposium," Sponsor: Colorado Department of Public Health and Environment, Amount: \$66,000.00.
- 2023 – 2023 "Colorado Nutrient Load Assessments," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$180,000.00.
- 2022 – 2025 "eRAMS-Catena Tools for CDPHE Management Plan and Scenario Assessment," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$265,000.00.
- 2022 – 2023 "CDPHE- 208 Agency Outreach," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$39,167.00.
- 2022 – 2025 "Colorado Stormwater Control Measures - Training, Education and Community Outreach," Sponsor: Colorado Department of Public Health and Environment, Amount: \$66,666.00.
- 2021 – 2025 "Process Modeling, Machine Learning and Computational Tools for Watershed Modeling

- from Fire to Field," Sponsor: USDA-ARS-Agricultural Research Service, Amount: \$357,390.15.
- 2021 – 2023 "CESU-CP: Geospatially Enabled Data and Modeling Services to Improve the BLM Salinity Program Assessments and Decision Making in the Colorado River Basin," Sponsor: DOI-BLM-Bureau of Land Management, Amount: \$250,000.00.
- 2021 – 2023 "Program Income for 5302546 - Colorado Stormwater Control Measures - Training, Education and Community Outreach," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$2,650.00.
- 2021 – 2022 "BLM-NOC, Enhancement of APEX Model for Simulating Soil Erosion and Salt Transport in the Colorado River Basin," Sponsor: Texas A and M University, Amount: \$200,000.00.
- 2020 – 2024 "Colorado Stormwater Control Measures - Training, Education and Community Outreach," Sponsor: Colorado Department of Public Health and Environment, Amount: \$50,000.00.
- 2020 – 2025 "Geospatial Flood Prediction Tool for Infrastructure Resilience," Sponsor: USDA-USFS-Forest Research, Amount: \$300,000.
- 2020 – 2023 "A Comprehensive Assessment Framework and Rating System for One Water Cities," Sponsor: Water Research Foundation, Amount: \$89,999.00.
- 2020 – 2022 "A System and Process for Assessing Water Use of Land Use Decisions," Sponsor: Colorado Water Conservation Board (CWCB) and Utility Partners, Amount: \$183,249.00.
- 2020 – 2021 "Denver One Water Plan," Sponsor: Carollo Engineers, Amount: \$30,000.00.
- 2019 – 2022 "Missouri River Recovery Management Plan Adaptive Management Decision Support System," Sponsor: Army Corps of Engineers (via ESSA Technologies, Ltd.), Amount: \$1,218,000.00.
- 2019 – 2020 "Modeling the Effects of EQIP Conservation Practices on Surface Water Quality," Sponsor: BRINK, Inc. Environmental Solutions, Amount: \$34,966.00.
- 2019 – 2023 " Hydrological modeling to assess vulnerability of water supply in the contiguous US," Sponsor: USDA-USFS-Rocky Mtn. Research Station - CO, Amount: \$105,000.00.
- 2018 – 2021 " Colorado Stormwater Training Development for WQIF 2018," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$50,000.00.
- 2018 – 2022 "E.Coli Sampling in the Cache la Poudre River," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$205,154.00.
- 2018 – 2021 " E.Coli Sampling in Denver Streams," Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$115,445.00.
- 2018 – 2019 "Citywide Stormwater Resiliency Study," Sponsor: City University of New York, Amount: \$276,926.00.
- 2018 – 2019 "Vulnerability of U.S. Water Supply Systems to Shortage," Sponsor: USDA-USFS-Rocky Mtn. Research Station - CO, \$44,999.86.
- 2017 – 2018 "Citizen Science Supplement to SRN: Urban Water Innovation Network (U-WIN): Transitioning Toward Sustainable Urban Water Systems." Sponsor: NSF-National Science Foundation, Amount: \$100,000.00.
- 2016 – 2021 "Modeling Ecosystem Services in Agricultural Watersheds." Sponsor: USDA-ARS-Agricultural Research Service, Amount: \$641,301.00
- 2016 – 2021 "eRAMS Tools for CDPHE-WQCD." Sponsor: Colorado Department of Public Health and Environment, Amount: \$1,236,308.91.
- 2016 – 2022 "Social Environmental and Economic Justice Supplement to SRN: Urban Water Innovation Network (U-WIN): Transitioning Toward Sustainable Urban Water Systems." Sponsor: NSF-National Science Foundation, Amount: \$597,836.00.
- 2015 – 2022 "SRN: Urban Water Innovation Network (U-WIN): Transitioning Toward Sustainable Urban Water Systems." Sponsor: NSF-National Science Foundation, Amount: \$12,100,000.00.

- 2015 – 2016 “Water Quality Data Analysis and Modeling Tools for the Implementing of Colorado Regulation 85.” Sponsor: CDPHE, Amount: \$278,000.00.
- 2015 – 2016 “Data and Standards for Colorado Regulation 85.” Sponsor: CDPHE, Amount: \$24,000.00.
- 2015 – 2016 “Application of the SWAT Model to Determine the Environmental Sustainability of Feedstock Product of Biofuels in Hawaii.” Sponsor: Texas A&M University, Amount: \$20,000.00.
- 2014 – 2015 “Assessing the Benefits of USDA Conservation Programs in the Upper Klamath River Basin on Ecosystem Services.” Sponsor: Humboldt State University Foundation, Amount: \$30,573.00.
- 2014 – 2015 “Small Hydro Power Innovation Portal.” Sponsor: Hydro Research Foundation, Amount: \$15,000.00.
- 2013 – 2017 “Center for Comprehensive, Optimal, and Effective Abatement of Nutrient (CLEAN).” Sponsor: USEPA, Amount: \$2,994,994.00.
- 2013 – 2017 “Improved Assessment of Nitrogen and Phosphorus Fate and Transport for Irrigated Agricultural Watersheds in Semi-Arid Regions.” Sponsor: USDA-NIFA, Amount: \$489,180.00.
- 2013 – 2018 “Improve and Enhance the Object Modeling System for Building New Models and Conservation Tools and Transferring This Technology.” Sponsor: USDA, Amount: \$261,140.00.
- 2013 – 2014 “Delivery of the OMS-based AGES-W Resource Concerns Assessment Model for Evaluating Water/Nutrient Management.” Sponsor: USDA, Amount: \$114,417.00.
- 2013 – 2014 “Tools to Address Agricultural Nutrient Nonpoint Source Contamination.” Sponsor: USDA, Amount: \$ 146,704.00.
- 2013 – 2015 “RAPID: Collaborative Research: Fate and Transport of Antibiotics and Antibiotic Resistance Genes during Historic Colorado Flood.” Sponsor: NSF, Amount: \$14,000.00.
- 2012 – 2014 “Assessing the Benefits of USDA Conservation Programs in the Upper Klamath River Basin on Ecosystem Services.” Sponsor: Humboldt State University Foundation, Amount: \$61,544.00.
- 2012 – 2017 “WSC-Category 3: Assessing Water Management Tradeoffs and Targets under Climatic and Land Use Uncertainty.” Sponsor: USDA-NIFA/NSF, Amount: \$1,500,000.00.
- 2012 – 2013 “Water Innovation Network (WIN) Pilot Study: Optimizing Nutrient Removal at WWTPs through Real-time Monitoring of the Watershed and eRAMS Technology Analytical Tools.” Sponsor: Colorado Water Innovation Cluster, Amount: \$80,000.00.
- 2011 – 2015 “Spatial Data and Implementation Tools for Distributed Watershed Modeling Addressing NRCS Resource Concerns.” Sponsor: USDA-ARS, Amount: \$326,350.00.
- 2011 – 2012 “eRAMS Asset Mapping Tool for Colorado Association for Manufacturing and Technology.” Sponsor: Colorado Association for Manufacturing and Technology (CAMT), Amount: \$39,000.00.
- 2011 – 2013 “Assessment of Conservation Practices in Arkansas, Cache River Watershed and Bayou Meto Watershed.” Sponsor: Arkansas NRCS, Amount: \$60,000.00.
- 2011 – 2013 “Assessment of Conservation Practices in Arkansas, Lower St. Francis & Bayou Macon.” Sponsor: Arkansas NRCS, Amount: \$90,000.00.
- 2011 – 2012 “Environmental Impacts of Ag-to Urban Water Rights.” Sponsor: Department of Interior-USGS, Amount: \$5000.00.
- 2011 – 2014 “Analysis of Conservation Practice Effectiveness and Producer Adoption Behavior in Lake Jordan Watershed.” Sponsor: North Carolina State University (Funding agency: USDA-NIFA), Amount: \$146,573 (Total amount: \$600,000.00).
- 2010 – 2011 “Calibration, Sensitivity Analysis, and Uncertainty Analysis Tools for OMS.” Sponsor: NRCS, Amount: \$20,000.00.

- 2009 – 2013 “A Multi Criteria Decision Tool for the Assessment and Planning of Watershed Management Practices.” Sponsor: USDA-NIFA, Amount: \$615,000.00.
- 2009 – 2011 “Graduate Research Fellowship for Courtney Crowley.” Sponsor: NSF, Amount: \$62,000.00.
- 2008 – 2009 “Cyberinfrastructure for End-to-End Environmental Exploration.” Sponsor: Purdue University (Funding agency: NSF), Amount: \$31,140 (Total amount: \$500,000.00).
- 2007 – 2011 “Watershed-Scale Evaluation of BMP Effectiveness: Eagle Creek Watershed.” Sponsor: Purdue University (Funding agency: USDA-NIFA), Amount: \$53,125 (Total amount: \$600,000.00).
- 2007 – 2012 “Synthesizing and Extending Lessons Learned from the 13 CREES-CEAP Watersheds.” Sponsor: North Carolina State University (Funding agency: USDA-NIFA), Amount: \$40,000 (Total amount: \$600,000.00).
- 2007 – 2009 “Multi-Criteria Optimization of Watershed Management Practices for Sediment.” Sponsor: Purdue University (Funding agency: NRCS), Amount: \$103,200 (Total amount: \$205,700.00).
- 2007 – 2011 “Multiobjective Watershed Management Support System for Spatial Allocation of Agricultural Conservation Practices.” Sponsor: Purdue University (Funding agency: USDA-NIFA), Amount: \$247,590 (Total amount: \$575,000.00).
- 2007 – 2009 “Developing a GIS Database for Source-Tracking of Human versus Agricultural Inputs of Antibiotic Resistance Genes.” Sponsor: Department of Interior-USGS, Amount: \$15,280.00.

#### **Externally Funded Projects as CoPI**

- 2024 – 2024 "CDPHE eRAMS Maintenance 2024," Wible, T. (PI), Sponsor: Colorado Department of Public Health and Environment, Amount: \$90,000.00.
- 2023 – 2024 "Persephone/M4: Scaling and Resource integration," David, O. (PI), Sponsor: USDA-ARS-Agricultural Research Service, Amount: \$230,000.00.
- 2023 – 2024 "WEPP GIS for NRCS Field Scale Erosion Assessment," David, O. (PI), Sponsor: USDA-ARS-Agricultural Research Service, Amount: \$80,000.00.
- 2023 – 2024 "SWAT-C Based Soil Carbon Modeling Service for Nutrient and GHG Quantification," Olaf, D. (PI), Sponsor: Truterra LLC, Amount: \$75,000.00.
- 2023 – 2023 "CDPHE eRAMS Maintenance 2023," Wible, T. (PI), Sponsor: Colorado Department of Public Health and Environment, Amount: \$90,000.00.
- 2022 – 2027 "Expanding Residential Rain Garden Installations in Front Range Communities," Thrasher, J. (PI), Sponsor: Colorado Water Conservation Board, Amount: \$90,300.00.
- 2022 – 2024 "Phase IV - Environmental Modeling for Key Performance Indicator Assessments," Olaf, D. (PI), Sponsor: Truterra LLC, Amount: \$546,000.00.
- 2022 – 2023 "Multi Model Prediction Engine Scaling and Operational Forecasting Prototyping," David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Consvtn Srv, Amount: \$230,000.00.
- 2022 – 2023 "Quantification of Nature-Based Storage," Wohl, E. (PI), Sponsor: Walton Family Foundation, Amount: \$100,000.00.
- 2021 – 2026 "Advancing Language Justice in Stormwater Education," Thrasher, J. (PI), Sponsor: Colorado Water Conservation Board, Amount: \$49,999.00.
- 2021 – 2022 "Environmental Modeling for Key Performance Indicator Assessments," Olaf, D. (PI), Sponsor: Truterra LLC, Amount: \$338,600.00.
- 2021 – 2021 "Soil Organic Carbon Modeling for Microsoft Carbon Dioxide Removal Project," Olaf, D. (PI), Sponsor: Truterra LLC, Amount: \$115,000.00.
- 2020 – 2021 "Revegetation Web Application," Sponsor: SSCT LLC, Olaf, D. (PI), Amount: \$90,000.00.



- 2020 – 2021 "CESU-RM: CSU-CEE update and maintain the eWSF including the OMS/PRMS," Olaf, D. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$15,000.00.
- 2020 – 2025 "Verde River Wild and Scenic River Riverine Environmental Flow Decision Support System (REFDSS)," Morrison, R. (PI), Sponsor: USDA-USFS-Forest Research, Amount: Amount: \$149,000.00.
- 2020 – 2025 "CESU-GP: Conservation Resources Domain Technology Research and Development," Olaf, D. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$2,055,000.00.
- 2020 – 2021 "COVID-19: Wastewater Testing for State of Colorado," Wilusz, C. J. (PI), Sponsor: Colorado Department of Public Health and Environment, State of Colorado, Amount: \$180,020.43.
- 2020 – 2021 "COVID-19: Wastewater Testing for State of Colorado," Wilusz, C. J. (PI), Sponsor: Colorado Department of Public Health and Environment, State of Colorado, \$309,979.57.
- 2019 – 2024 "Frameworks: Collaborative Proposal: Software Infrastructure for Transformative Urban Sustainability Research," Pallickara, S. (PI), Sponsor: NSF-National Science Foundation, Amount: \$2,016,338.00.
- 2019 – 2024 "CESU-GP: Design, Implement, and Support Erosion and Water Quality Model and Data Services for Conservation Reserve Program (CRP) Ranking Process," David, O. (PI), Sponsor: USDA-FSA-Farm Service Agency, Amount: \$690,000.00.
- 2019 – 2024 "CESU-RM: Edge of Field Document Management Database (EoFDMDb)," David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$525,000.00.
- 2019 – 2022 "WEPP Watershed web-based GIS Interface," David, O. (PI), Sponsor: USDA-ARS-Agricultural Research Service, Amount: \$175,000.00.
- 2019 – 2020 "Model and Data Web-Services, Support and Upgrade for NRCS CDSI - 2018," David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$330,000.00.
- 2019 – 2020 "CESU-CP: Water Supply Forecasting System (eWSF) Update and Support," David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$15,000.00.
- 2017 – 2020 "Water Quality Improvement Fund," Dell, T. A. (PI), Sponsor: Colorado Department of Public Health and Environment, Amount: \$75,000.00.
- 2018 – 2019 "E.Coli Sampling in the Cache la Poudre River," Dell, T. A. (PI), Sponsor: Colorado Department of Public Health and Environment, Amount: \$205,151.67.
- 2018 – 2023 "NRTINFEWS: Interdisciplinary Training, Education and Research for Food-Energy-Water Systems (InTERFEWS) in Semi-Arid Regions," Sharvelle, S. (PI), Sponsor: NSF-National Science Foundation, Amount: \$2,999,980.50.
- 2018 – 2019 "Model and Data Web-Services, Support and Upgrade for NRCS CDSI - 2018," David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$330,000.00.
- 2018 – 2019 "PRMS 4.0.3 Model eWSF Integration," David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$15,000.00.
- 2018 – 2019 "Advanced Collaboration Techniques in Complex Urban Modeling," Sponsor: DOD-ARMY-Corps of Engineers, David, O. (PI), \$224,000.00.
- 2017 – 2018 "Developing a Holistic Modeling Infrastructure System for Multi-Model Interoperability for Complex Urban Environments." David, O. (PI), Sponsor: DOD- Army Corps of Engineers, Amount: \$100,000.00.
- 2017 – 2018 "Multi-Model Calibration, Verification and Visualization for Complex Urban Environments." David, O. (PI), Sponsor: DOD- Army Corps of Engineers, Amount: \$30,000.00.
- 2016 – 2019 "Life Cycle Costs of Water Infrastructure Alternatives." Sharvelle, S. E. (PI), Sponsor: Water Environment Research Foundation (funding from EPA), Amount: \$500,498.00.
- 2016 – 2018 "Resource Stewardship Computation and Data Services for the Conservation Delivery Streamlining Initiative." David, O. (PI), Sponsor: USDA-NRCS-Natural Resources

- Conservation Service, Amount: \$550,000.00.
- 2016 – 2017 "Snow Model Integration (isnobar) into the PRMS/OMS Model for Improved Water Supply Forecasting with eWSF." David, O. (PI), Sponsor: USDA-NRCS- Natural Resources Conservation Service, Amount: \$100,000.00.
- 2015 – 2017 "Resource Stewardship Computation and Data Services for the Conservation Delivery Streamlining Initiative (CDSI)." David, O. (PI), Sponsor: USDA-NRCS-Natural Resources Conservation Service, Amount: \$950,000.00.
- 2014 – 2016 "Next Generation Water Supply Forecasting System." PI: O. David, Sponsor: USDA-NRCS, Amount: \$224,898.
- 2014 – 2015 "Model and Data Services for the Conservation Delivery Streamlining Initiative (CDSI)." O. David (PI), Sponsor: USDA-NRCS, Amount: \$528,250.
- 2014 – 2015 "Maintain and Improve the OMS/CSIP Service and Data Provisioning Infrastructure." PI: O. David, Sponsor: USDA-NRCS, Amount: \$208,600.
- 2014 – 2014 "Developing a Geospatial User Interface for the IWBMIso Balance Model." O. David (PI), Sponsor: International Atomic Energy Agency, Amount: \$23,603.23.
- 2012 – 2016 "Tools to Address Agricultural Nutrient Nonpoint Source Contamination." T. Bauder (PI), Sponsor: Colorado Department of Public Health and Environment (CDPHE), Amount: \$219,026.
- 2012 – 2013 "Full accounting of Pyrogenic-C dynamics at the watershed Scale." F. Cotrufo (PI), Sponsor: NSF, Amount: \$197,800.
- 2012 – 2014 "Identifying Arkansas River Selenium and Nitrogen Best Management." T. Gates (PI), Sponsor: Colorado Department of Health and the Environment, Amount: \$256,000.
- 2011 – 2015 "Mobile Irrigation Water Management System Using eRAMS Cloud Computing Infrastructure." A. Andales (PI), Sponsor: USDA-NIFA, Amount: \$367,500.

### **Internally Funded Awards**

- 2023 – 2028 "Smart Water Software Solutions.", Sponsor: CSU Spur, Amount: \$800,000.00.
- 2023 – 2028 "Water Technology Accelerator Platform(TAP)." Sharvelle, S. (PI), Sponsor: CSU Spur, Amount: \$1,200,000.00.
- 2023 – 2026 "Assessment of the effects of irrigation water management on nutrient and salinity loads from agricultural fields to river basin scale." Bailey, R. (PI), Sponsor: Colorado AES, Amount: \$120,000.00.
- 2015 – 2016 "eRAMS Spatial Mapping Tool for CoAgMet, Sponsor: Colorado Climatologist Office (original funds from CWCB)." Amount \$30,000.00.
- 2015 – 2018 "Nutrient Reductions in Irrigated Agricultural Watersheds: Intentional Planning, Implementation, and Maintenance." Sponsor: Colorado AES, Amount: \$90,000.00.
- 2011 – 2015 "Bridging the gap between wide-area assessment and farm level conservation planning: Demonstration in priority Colorado watersheds." Sponsor: Colorado AES, Amount: \$123,000.00.
- 2008 – 2011 "A Watershed-Scale Planning Tool for Evaluation of Agricultural Conservation Practices." Sponsor: Colorado AES, Amount: \$105,000.00.
- 2008 – 2009 "Role of Animal Waste Composting Protocols in Minimizing Impacts of Ag Antibiotics." Sponsor: Colorado AES, Amount: \$35,000.00.

## **PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROF. MEETINGS/ WORKSHOPS**

1. Arabi, M. (2023). Meeting Urban Stormwater and Coastal Resiliency Challenges via Cross-Sectoral and City to City Collaborations, UN 2023 Water Conference Side Event Symposium, Brooklyn College's Graduate Center for Worker Education, NYC, NY, USA, March 24, 2023.
2. Arabi, M. (2023). Water Sustainability in a Changing World, Hydrologic Sciences Symposium, University of Colorado, Boulder, CO, April 12, 2023.
3. MohammadZadeh, M., T. Dell, S. Sharvelle, and M. Arabi (2023). Beyond Flood Control: Evaluating the Environmental, Economic, and Social Co-benefits of Stormwater Management Practices in Philadelphia. AGU Hydrology Days 2023, March 21-22, 2023, Colorado State University, Fort Collins, CO.
4. Ghanbari, M., S. Yochum, T. Wible, and M. Arabi (2023). Enhancing Community Resilience through Better Flood Hazard Communication: The Role of the Flood Potential Portal. AGU Hydrology Days 2023, March 21-22, 2023, Colorado State University, Fort Collins, CO.
5. Supple, L., and M. Arabi (2023). Participatory Models of Regenerative Urban Infrastructures as Complex Adaptive Social-Ecological-Technological Systems. AGU Hydrology Days 2023, March 21-22, 2023, Colorado State University, Fort Collins, CO.
6. Dezfooli, D., M. Arabi, I. Wiersema, J. Bolson, S. Millonig, J. Reed, M. Sukop, and K. Wamstad (2023). An Introduction to a Comprehensive Self-Assessment Framework and Rating System for One Water Cities. AGU Hydrology Days 2023, March 21-22, 2023, Colorado State University, Fort Collins, CO.
7. Ghanbari, M., S. Yochum, T. Wible, and M. Arabi (2022). Flood Potential Portal: A Web Tool For a Better Understanding of Riverine Flood Hazards in the US. AGU Fall Meeting 2022. December 11-15, 2022. Chicago, IL.
8. Dezfooli, D., M. Arabi, J. Bolson, I. Wiersema, M. Sukop, J. Mutter, S. Millonig, and K. Wamstad. (2022). A Self-Assessment Framework for One Water Cities: A Roadmap to Support One Water Futures and Guide Management Actions. AGU Fall Meeting 2022. December 11-15, 2022. Chicago, IL.
9. MohammadZadeh, M., M. Arabi, T. Dell, and S. Sharvelle. (2022). Cloud-based Webtool for Urban Hydrological Assessment at Municipal Scale. AGU Fall Meeting 2022. December 11-15, 2022. Chicago, IL.
10. Ghanbari, M., M. Arabi, M. Georgescu, and A. Broadbent. (2022). Contemporary And Projected Probability of Compound Dry-hot Events Across U.S. Cities. EWRI World Environmental & Water Resource Congress. June 5-8, 2022. Atlanta, GA.
11. Aliyari, F. (Author & Presenter), Bailey, R. T., Arabi, M. (2021). A versatile river basin-scale approach in assessing groundwater vulnerability to climate change. AGU Hydrology Days 2021. March 30 – 31, 2021. Colorado State University, Fort Collins, CO.
12. Dezfooli, D. (Author & Presenter), Arabi, M., Bolson, J., Wiersema, I., Sukop, M. (2021). Understanding Urban Water Sustainability Transitions to One Water Using Science-based Expert Interviews. AGU Fall Meeting 2021. December 13 – 17, 2021. New Orleans, LA.
13. Dezfooli, D. (Author & Presenter), and Arabi, M. (2021). A review on State of 'One Water' in Different Cities across the World. AGU Hydrology Days 2021. March 30 – 31, 2021. Colorado State University, Fort Collins, CO.
14. Ghanbari, M. (Author & Presenter), Arabi, M., Georgescu, M., Broadbent, A. M. (2021). Future Probability of Compound Hot-Dry Events Under the Impact of Climate Change, Urban Expansion, and Adaptation in US Cities. AGU Fall Meeting 2021. December 13 – 17, 2021. New Orleans, LA.
15. Ghanbari, M. (Author & Presenter), Arabi, M., Kao, S. C., Obeysekera, J., Sweet, W. (2021). Higher Probability of Compound Coastal-Riverine Flooding Under Climate Change Along the U.S.

- Coasts. EWRI World Environmental & Water Resource Congress 2021. June 7 – 11, 2021. Online.
16. Ghanbari, M. (Author & Presenter), Arabi, M., Kao, S. C., Obeysekera, J., Sweet, W. (2021). Compound Coastal-Riverine Flooding Along the U.S. Coasts: The Effects of Sea Level Rise and River Flow Change. AGU Hydrology Days 2021. March 30 – 31, 2021. Colorado State University, Fort Collins, CO.
  17. Gharib, A. (Author & Presenter), Manning, D. T., Arabi, M., Goemans, C. (2021). When can Additional Storage and Demand Reductions Facilitate Adaptation to Increasing Water Scarcity? Lessons from the South Platte River Basin of Colorado. AGU Fall Meeting 2021. December 13 – 17, 2021. New Orleans, LA.
  18. Gharib, A. (Author & Presenter), Arabi, M., Manning, D., Goemans, C. (2021). Changes in water delivery to agricultural and municipal sectors under current institutions in response to climate change, population growth and rapid urbanization. AGU Hydrology Days 2021. March 30 – 31, 2021. Colorado State University, Fort Collins, CO.
  19. Heidari, H. (Author & Presenter), Arabi, M., Warziniack, T. (2021). Vulnerability to Water Shortage Under Current and Future Water Supply-Demand Conditions Across U.S. River Basins. AGU Fall Meeting, Dec 13 – 17, New Orleans, LA.
  20. Heidari, H. (Author & Presenter), Arabi, M., Warziniack, T., Kao, S.-C. (2021). Shifts in Hydroclimatology of U.S. Megaregions in Response to Climate Change. EWRI World Environmental & Water Resource Congress. June 7 – 11, 2021. Online.
  21. Heidari, H. (Author & Presenter), Warziniack, T., Brown, T. C., Arabi, M. (2021). Impacts of Climate Change on Hydroclimatic Conditions of U.S. National Forests and Grasslands. EWRI World Environmental & Water Resource Congress. June 7 – 11, 2021. Online. Sharvelle, S. E. (Author & Presenter),
  22. Mohammadzadeh, M., Arabi, M., Sharvelle, S., Dell, T. (2021). Assessing the Performance Validity of the CLASIC Tool for the Characterization of Urban Hydrologic Components Compared to a Full SWMM Model. AGU Hydrology Days 2021. March 30 – 31, 2021. Colorado State University, Fort Collins, CO.
  23. Neale, M. R. (Author & Presenter), Arabi, M. (Author), International Environmental Modelling and Software conference, "Assessing Regional Tradeoffs for Fit-for-Purpose Water and End-Use Efficiency," International Environmental Modelling and Software Society, Brussels, N/A, Belgium. (December 2, 2020).
  24. Ghanbari, M. (Author & Presenter), Arabi, M. (Author), International Environmental Modelling and Software conference, "Modelling Compound Fluvial and Coastal Flooding Under Rising Sea Levels," International Environmental Modelling and Software Society, Brussels, N/A, Belgium. (December 2, 2020).
  25. Heidari, H. (Author & Presenter), Arabi, M. (Author), Assessing the Impacts of Climate Changes on the Regional Hydroclimatic Conditions of U.S. River Basin over the 21st Century, Hydrology Days 2020, Fort Collins, CO. (April 2020).
  26. Ghanbari, M. (Author & Presenter), and M. Arabi (Author), Impacts of sea level rise on compound fluvial and coastal flooding, AGU Fall Meeting, 2019.
  27. Heidari, H. (Author & Presenter), M. Arabi (Author) (Author), T. Warziniack (Author), and S.C. Kao (Author), Changes in hydroclimatic characteristics of river basins in the U.S over the 21st century, AGU Fall Meeting, 2019.
  28. Heidari, H. (Author & Presenter), Arabi, M. (Author), Ghanbari, M. (Author), 2018 AGU Fall Meeting, "A Novel Probabilistic Approach for Characterization of Municipal Water Shortage Vulnerability under Nonstationary Supply and Demand Conditions," American Geophysical Union, Washington, D.C., (December 14, 2018).
  29. Ghanbari, M. (Author & Presenter), Arabi, M. (Author), Obeysekera, J. (Author), Sweet, W.

- (Author), 2018 AGU Fall Meeting, "Coastal Flooding Risks on the Rise," American Geophysical Union, Washington, D.C., (December 13, 2018).
30. Heiden, C. (Author & Presenter), Arabi, M. (Author), 2018 AGU Fall Meeting, "A novel probabilistic approach to characterization of water quality vulnerability along Urban Gradients," American Geophysical Union, Washington, D.C., (December 10, 2018).
  31. Wible, T. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "Regional Assessment of Temporal Changes in Flood Frequency and Magnitude," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 28, 2018).
  32. Traff, K. (Author & Presenter), Arabi, M. (Author & Presenter), 9th International Congress on Environmental Modelling and Software, "Building Containerized Environmental Models Using Continuous Integration with Jenkins and Kubernetes," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 27, 2018).
  33. Neale, M. (Author & Presenter), Sharvelle, S. (Author), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, " Identifying optimal water conservation and reuse strategies using an urban water demand model for a selection of U.S. cities with distinct climatic conditions and land cover characteristics," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 27, 2018).
  34. Patterson, D. (Author & Presenter), Arabi, M. (Author & Presenter), Traff, K. (Author), 9th International Congress on Environmental Modelling and Software, "Workshop: eRAMS Online Tools for Integrated Resource Management," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 27, 2018).
  35. Kim, J.S. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "Development of Watershed Delineation Tool Using Open-Source Software Technologies," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 27, 2018).
  36. Dozier, A. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "Optimizing water supply options for a region with urban-rural interactions," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 26, 2018).
  37. Dell, T. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "An introduction to the modeling framework and outputs of the Community-enabled Life-cycle Analysis of Stormwater Infrastructure Costs (CLASIC) tool," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 25, 2018).
  38. Wible, T. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "A Web-based Healthy Watersheds Assessment Framework," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 25, 2018).
  39. Ghanbari, M. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "Risk to Assets and Communities from Coastal Flooding: Quantifying the effect of sea level rise and flood adaptation strategies," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 25, 2018).
  40. Heidari, H. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "An Analytical Framework for Assessing Water Shortage Vulnerability under Nonstationary Supply and Demand Conditions," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 25, 2018).
  41. Tasdighi, A. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental

- Modelling and Software, "Water quality trading: a framework for incorporating modeling uncertainties into quantification of trading ratios," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 25, 2018).
42. Tasdighi, A. (Author & Presenter), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "Distributed hydrologic modeling: lessons learned from a probabilistic appraisal of various rainfall-runoff modeling methods in a mixed land use watershed," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 25, 2018).
  43. Batista, G. (Author & Presenter), Sharvelle, S. (Author), Dozier, A. (Author), Arabi, M. (Author), 9th International Congress on Environmental Modelling and Software, "Evaluation of Water Conservation Strategies Using the Integrated Urban Water Model in Sao Paulo, Brazil," International Congress on Environmental Modelling and Software, Fort Collins, CO, United States. (June 27, 2018).
  44. Tasdighi, A. (Author & Presenter), Arabi, M. (Author), Motallebi, M. (Author), Hydrology Days 2018, "Vulnerability of water resources to nutrient pollution: The usual suspects, urban development and agricultural activities," Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  45. Dozier, A. (Author & Presenter), Arabi, M. (Author), Wostoupal, B. (Author), Hydrology Days 2018, "Newcomers have subsidized water in the South Platte River Basin," Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  46. Heidari, H. (Author & Presenter), Arabi, M. (Author), Dozier, A. (Author), Hydrology Days 2018, "An Analytical Framework for Assessing Municipal Vulnerability to Water Shortage and Drought Characteristics under Nonstationary Supply and Demand Conditions," Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  47. Ghanbari, M. (Author & Presenter), Arabi, M. (Author), Hydrology Days 2018, "Risk to Assets and Communities from Coastal Flooding: Quantifying the effect of sea level rise and flood adaptation strategies," Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  48. Neale, M. (Author & Presenter), Dozier, A. (Author), Sharvelle, S. (Author), Arabi, M. (Author), Hydrology Days 2018, "Identifying optimal water conservation and reuse strategies using an urban water demand model for a selection of U.S. cities with distinct climatic conditions and land cover characteristics," Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  49. Batista, G. (Author & Presenter), Dozier, A. (Author), Sharvelle, S. (Author), Arabi, M. (Author), Hydrology Days 2018, "Characterization of urban water use and water demand forecasting using the Integrated Urban Water Model in Sao Paulo, Brazil," Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  50. Wostoupal, B. (Author & Presenter), Dozier, A. (Author), Arabi, M. (Author), Goemans, C. (Author), Hydrology Days 2018, "Can water conservation save agriculture?" Hydrology Days, Fort Collins, CO, United States. (March 19-21, 2018).
  51. Arabi, M., Urban Water Demand Management, South Platte River Forum, Loveland, CO, October 26, 2017, Presentation.
  52. Arabi, M., Urban Water Innovation Network Annual Meeting, Fort Collins, CO, July 31-August 2, 2017, Workshop/Organizer.
  53. Arabi, M., Urban Water Innovation Network Pacific Northwest Annual Stakeholders Meeting, Eugene, OR, July 13, 2017, Workshop/Organizer.
  54. Arabi, M., Urban Water Innovation Network New York City Annual Stakeholders Meeting, New York, NY, June 16, 2017, Workshop/Organizer.
  55. Dell, T., M. Arabi, and C. Olson, Investigation of the use of a simple model with national datasets to predict nutrient loads in urban stormwater, 2017 UCOWR/NIWR Conference, Fort Collins, CO,

- June 13-15, 2017, Presentation/Organizer.
56. Mass, A., M. Arabi, D. Manning, and C. Goemans, Residential water and electricity: Substitutes or complements?, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation.
  57. Osmond, D., D. Meals, D. Hoag, M. Arabi, D. Line, and A. Sharpley, Agricultural watershed projects and conservation practices: Synthesis and lessons learned from 13 watersheds across the United States, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation.
  58. Sharvelle, S., M. Arabi, and A. Dozier, Application of the Integrated Urban Water Model to assess scenarios of water conservation and reuse, climate change and urban growth, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation/Organizer.
  59. Dozier, A., M. Arabi, C. Goemans, B. Wostoupal, Y. Zhang, and K. Paustian, Hydroeconomic modeling framework for assessing vulnerability to water demands in arid regions, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation/Organizer.
  60. Kenney, D. A. Dozier, M. Arabi, and M. Squillace, Can the M&I water supply gap be met exclusively with agricultural conservation?, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation/Organizer.
  61. Zhang, Y., A. Dozier, M. Arabi, and K. Paustian, Enhancing the DayCent model to analyze deficit irrigation practices in SPRB, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation/Organizer.
  62. Aliyari, F., R. Bailey, A. Tasdighi, and M. Arabi, Assessing groundwater vulnerability in the South Platte River Basin under future changes in land use and climate, 2017 UCOWR/NIWR Conference, Fort Collins, CO, June 13-15, 2017, Presentation.
  63. Tasdighi, A., and M. Arabi, Incorporating Total Uncertainty Estimates in Quantifying Trading Ratios for Water Quality Trading Programs, World Environmental & Water Resources Congress 2017, Sacramento, CA, May 21-25, 2017, Presentation.
  64. Dell, T., M. Arabi, and C. Olson, Investigation of the Use of a Simple Model with National Datasets to Predict Nutrient Loads in Urban Stormwater, World Environmental & Water Resources Congress 2017, Sacramento, CA, May 21-25, 2017, Presentation.
  65. Dozier, A., M. Arabi, C. Goemans, A. Baumann, Y. Zhang, B. Wostoupal, S. Sharvelle, and K. Pautian, Hydroeconomic Modeling Framework for Assessing Tradeoffs in Agricultural and Municipal Water Use, World Environmental & Water Resources Congress 2017, Sacramento, CA, May 21-25, 2017, Presentation.
  66. Wostoupal, B., A. Dozier, and M. Arabi, Characterization of Vulnerability to Agricultural Production in Arid Regions Under Rapid Population Growth, World Environmental & Water Resources Congress 2017, Sacramento, CA, May 21-25, 2017, Presentation.
  67. Ghanbari, M., and M. Arabi, Current and Future Flood Losses in the Southeast Florida, World Environmental & Water Resources Congress 2017, Sacramento, CA, May 21-25, 2017, Presentation.
  68. Wible, T., and M. Arabi, Web infrastructure for flood frequency analysis, World Environmental & Water Resources Congress 2017, Sacramento, CA, May 21-25, 2017, Poster.
  69. Arabi, M., Urban Water Innovation Network Arizona Sun Corridor Annual Stakeholders Meeting, Tempe, AR, April 13, 2017, Workshop/Organizer.
  70. Dozier, A. M. Arabi, C. Goemans, B. Wostoupal, Y. Zhang, and K. Paustian, Hydroeconomic modeling framework for assessing vulnerability to water demands in arid regions, AGU Hydrology Days, Fort Collins, CO, March 20-22, 2017, Presentation.
  71. Jobin, O. A. Tasdighi, and M. Arabi, Assessing Conservation Effects of Agricultural Management Practices in Irrigated River Basins, AGU Hydrology Days, Fort Collins, CO, March 20-22, 2017, Presentation.

72. Arabi, M., CLEAN Nutrient Center Stakeholder Meeting, Fort Collins, CO, March 2, 2017, Workshop/Organizer.
73. Arabi, M., Urban Water Innovation Network Southwest Florida Annual Stakeholders Meeting, Miami, FL, February 9, 2017, Workshop/Organizer.
74. Motallebi, M., A. Tasdighi, D. Hoag, M. Arabi, and D. Osmond, How and Where Environmental Markets Work with an example of Water Quality Trading Programs, 2<sup>nd</sup> Clemson University Research Symposium, 2017, Poster.
75. Motallebi, M., A. Tasdighi, D. Hoag, and M. Arabi, Impact of Relative Demand for Ecosystem Services on their Staking Markets, A Community on Ecosystem Services (ACES) Conference, Jacksonville, FL, Dec 5-9, 2016, Invited Presentation.
76. Arabi, M., Resilient urban water infrastructure, International Conference on Sustainable Infrastructure (ICSI) 2016: NSF Workshop, Shenzhen, China, October 19, 2016, Invited Presentation.
77. Motallebi, M., A. Tasdighi, D. Hoag, and M. Arabi, Role of Weather on Design of a Water Quality Trading Program Baseline: A Case Study of the Jordan Lake, 2016 Agricultural and Applied Economics Association Annual Meeting (AAEA) Conference, Boston, MA, July 29th- August 2, 2016, Invited Presentation.
78. Arabi, M., Urban Water Innovation Network Annual Meeting, Fort Collins, CO, August 3-5, 2016, Workshop/Organizer.
79. Arabi, M., Urban Water Innovation Network Colorado Front Range Annual Stakeholders Meeting, Fort Collins, CO, August 2, 2016, Workshop/Organizer.
80. Arabi, M., Urban Water Innovation Network Pacific Northwest Annual Stakeholders Meeting, Eugene, OR, July 12, 2016, Workshop/Organizer.
81. David, O., W. Lloyd, J. Carlson, M. Arabi, and T. Wible, Cloud Services Integration Platform (CSIP) Model and Data Services, 8th International Congress on Environmental Modelling and Software, Toulouse, France, June 15-19, 2016, Presentation.
82. Arabi, M., Urban Water Innovation Network Mid-Atlantic Annual Stakeholders Meeting, Baltimore, MD, May 24, 2016, Workshop/Organizer.
83. Arabi, M. Nutrient Management Tradeoffs and Targets: A System Approach, Natural Resources Ecology Lab (NREL), Colorado State University, Fort Collins, April 22, 2016, Invited Lecture.
84. Arabi, M., Urban Water Innovation Network Arizona Sun Corridor Annual Stakeholders Meeting, Tucson, AR, April 11, 2016, Workshop/Organizer.
85. Tasdighi, A., M. Arabi, and M. Motallebi, Water Quality Trading: How to Deal with Uncertainties in Modeling Nonpoint Sources?, the 36<sup>th</sup> Annual American Geophysical Union, AGU Hydrology Days, Colorado State University, Fort Collins, CO, March 21-23, 2016, Presentation.
86. Wei, X., R. Bailey, R. Records, and M. Arabi, Comprehensive Estimation of Solute Transport and Interaction in Surface-Subsurface Hydrologic System using the Linked SWAT-MODFLOW-RT3D Model, the 36<sup>th</sup> Annual American Geophysical Union, AGU Hydrology Days, Colorado State University, Fort Collins, CO, March 21-23, 2016, Presentation.
87. Motallebi, M., A. Tasdighi, D. Hoag, M. Arabi, and D. Osmond, Conditions for a Successful Water Quality Trading Program: Case Study Jordan Lake, North Carolina, the 36<sup>th</sup> Annual American Geophysical Union, AGU Hydrology Days, Colorado State University, Fort Collins, CO, March 21-23, 2016, Presentation.
88. Arabi, M., Urban Water Innovation Network Southwest Florida Annual Stakeholders Meeting, Miami, FL, February 10, 2016, Workshop/Organizer.
89. Arabi, M., CLEAN Nutrient Center Stakeholder Meeting, Fort Collins, CO, February 23, 2016, Workshop/Organizer.
90. Arabi, M., CLEAN Nutrient Center Annual Meeting, Fort Collins, CO, February 22, 2016,



- Workshop/Organizer.
91. Arabi, M., Toward sustainable urban water infrastructure, 16<sup>th</sup> Conference and Global Forum on Science, Policy and the Environment: The Food-Energy-Water Nexus, Washington, D.C., January 19-21, 2016, Invited Presentation.
  92. Arabi, M., Urban Water Innovation Network (UWIN): Transitioning toward sustainable urban water systems, 2015 AGU Fall Meeting, San Francisco, December 2015, Invited Lecture.
  93. Philips, M., S Denning, and M. Arabi, Extreme precipitation in a multi-scale modeling framework, 2015 AGU Fall Meeting, San Francisco, December 2015, oral presentation.
  94. Tasdighi, A., and M. Arabi, A probabilistic approach for analysis of modeling uncertainties in quantification of trading ratios in nonpoint to point source nutrient trading programs, 2015 AGU Fall Meeting, San Francisco, December 2015, poster presentation.
  95. Arabi, M., Pisces Foundation Panel on Integrated Water Management, December 2015, Invited Panelist.
  96. Arabi, M., Partnerships, Research, and Innovation for Urban Sustainability: Confronting Local Sustainability Challenges in a Global Environment, National Academy of Sciences, October 2015, Invited Panelist/Workshop.
  97. Arabi, M., CSU Energy Institute Advisory Board Meeting, October 2015, Invited Presentation.
  98. Arabi, M., Water Resources Assessment Program (WRAP), 10th Annual Sustaining Colorado Watersheds Conference, October 2015, Invited Lecture/Workshop.
  99. Arabi, M., One Water Solutions/Technologies, CSU Board of Governors Dinner Presentations, October 2015, Invited Presentation.
  100. Arabi, M., CLEAN Nutrient Center Research and Engagement, New Tools for Water Quality Improvements, EPA Region 8 HABS Workshop, Rapid City, DS, September 2015, Invited Presentation.
  101. Arabi, M., CLEAN Nutrient Center Research and Engagement, CDPHE WQCD Board Meeting, September 2015, Invited Presentation.
  102. Arabi, M., CWCB/ CSU Water Sustainability Symposium, September 2015, Workshop/Organizer.
  103. Arabi, M., Urban Water Innovation Network Annual Meeting, Fort Collins, CO, August 5-7, 2015, Workshop/Organizer.
  104. Arabi, M., CLEAN Nutrient Center Stakeholder Meeting, Fort Collins, CO, February 17, 2015, Workshop/Organizer.
  105. Arabi, M., CLEAN Nutrient Center Meeting, Fort Collins, CO, February 16, 2015, Workshop/Organizer.
  106. Arabi, M., Assessment of water quality effects of conservation practices in the Jordan Lake Watershed, N.C., Soil and Water Conservation Society, Greensboro, N.C., 2015, Invited Presentation/Workshop.
  107. Arabi, M., CLEAN Nutrient Center Annual Workshop, February 2015, Workshop/Organizer.
  108. Motallebi, M., A. Tasdighi, D. Hoag, M. Arabi, and D. Osmond, Impact of Relative Demand for Ecosystem Services on stacked ecosystem credit Markets, Baruch Institute of Coastal Ecology and Forest Science, Clemson University, 2015, Poster.
  109. Arabi, M., Water Sustainability under Land Use and Climate Uncertainty, NSF, January 30, 2014, Washington, D.C., Invited Lecture/Workshop.
  110. Arabi, M., Water Sustainability Analysis under Land Use and Climate Uncertainty, USDA, January 31, 2014, Washington, D.C., Invited Lecture/Workshop.
  111. Arabi, M., Resilient Water Infrastructure, CSU Innovation Breakfast, November 13, 2014, Denver, CO, Invited Lecture/Workshop.
  112. Arabi, M., Collaboration Cyberinfrastructure for Environmental & Water Resources Management, Center for Nutrient Solutions, November 20, 2014, Penn State, PA, Invited Lecture/Workshop.

113. Motallebi, M., D. Hoag, M. Arabi, and A. Tasdighi, An Economic Inquisition of When Water Quality Trading Works, AGU Hydrology Days, Colorado State University, Fort Collins, CO, 2014, Presentation.
114. Arabi, M., eRAMS Technology for Sustainable Water Resources Management, University of Colorado-Boulder Hydrology & Water Resources Seminar, November 20, 2013, Boulder, CO, Invited Lectures/Workshop.
115. Wible, T., J. Ditty, R. Bailey, and M. Arabi, July-2013, Spatial Integration of SWAT, MODFLOW, and RT3D for Simulation of Hydrologic and Water Quality Processes in Irrigated Agricultural Watersheds, SWAT 2013, July 15-19, 2013, Toulouse, France.
116. Ditty, J., P. Allen, J. Arnold, M. White, M. Arabi, July-2013, Deployment of SWAT-DEG as a Web Infrastructure Utilizing Cloud Computing for Stream Restoration, SWAT 2013, July 15-19, 2013, Toulouse, France.
117. Ahmadi M. and M. Arabi, July-2013, On the auto-calibration of watershed models: multisite many-objective measures of information, SWAT 2013, July 15-19, 2013, Toulouse, France.
118. Ahmadi M., R. Records, and M. Arabi, July-2013, Assessment of climate change impacts on diffuse nutrient and pesticide fluxes at the watershed scale, SWAT 2013, July 15-19, 2013, Toulouse, France.
119. Yen, H., R. Bailey, M. Arabi, M. Ahmadi, M. White, and J. Arnold, July-2013, Sensitivity Calibration and Uncertainty Evaluation of Model Calibration and Uncertainty Analysis with Incorporation of Watershed General Information, SWAT 2013, July 15-19, 2013, Toulouse, France.
120. Ahmadi M. and M. Arabi, July-2013, On targeted implementation of nonpoint source pollution control plans: enhancing the optimal design using a mixed discrete-continuous multiobjective genetic algorithm, SWAT 2013, July 15-19, 2013, Toulouse, France.
121. Osmond, D., D. Meals, and M. Arabi, 2012 - May, Conservation Effects Assessment Projects (CEAP): NIFA Watershed Synthesis, USDA-NIFA National Water Conference, Portland, OR, Invited Lectures/Workshop.
122. Andales, A. and M. Arabi, 2012 - May, Mobile Irrigation Water Management System using eRAMS, USDA-NIFA National Water Conference, Portland, OR, Poster Presentation.
123. Arabi, M., 2012 - February, CSU Water Cafe: Sustainability & the Poudre River Watershed, Colorado Water Institute, Fort Collins, Colorado, Invited Panelist.
124. Arabi, M., 2011- November, eRAMS-A Web Technology for end-to-end environmental management, USDA Water Technology Showcase, Washington, DC, Invited Lecture.
125. Arabi, M., 2011 - June, eRAMS-A Web Technology for end-to-end environmental management, MODFLOW and More Conference, Golden, Colorado, Invited Luncheon Speaker.
126. Arabi, M., 2011 - March, Modeling Nutrient Processes at the Watershed Scale, Modeling Summit 2011-Advancing Science of Modeling, Denver, CO, Invited Lecture.
127. Arabi, M., 2011 - February, Nutrient Modeling Overview, US EPA Nutrient TMDL Workshop, New Orleans, LA, Invited Lecture.
128. Arabi, M., 2011 - February, eRAMS – A Tool to Integrate Point and Nonpoint Source Reduction Strategies, US EPA Nutrient TMDL Workshop, New Orleans, LA, Invited Lecture.
129. Frankenberger, J., E. Trybula, I. Chaubey, C. Maringanti, B. Engel, M. Arabi, and M. Ahmadi, 2011 - February, Stakeholder perspectives n the use of optimization in watershed management, USDA-NIFA National Water Conference, Washington, DC, Paper Presentation.
130. Arabi, M., 2011 - February, eRAMS - A web technology for end-to-end watershed planning and management, USDA-NIFA National Water Conference, Washington, DC, Poster Presentation.
131. Arabi, M., 2011 - January, Building a Better Water Future in Education, Research, and Economic Development, Interdisciplinary Water Resources Seminar, Colorado Water Institute, fort Collins, Colorado, Invited Lecture.

132. Boyd E. and M. Arabi, 2010 - March, A physically-based method for channel extraction in a watershed model, AGU Hydrology Days, March 2010, Fort Collins, Colorado, Paper Presentation.
133. Cowley, C., M. Akhbari, M. Negahbanazar, M. Arabi, and K. Carlson, 2010 - March, Geospatial Analysis of the Occurrence and Transport of Antibiotics in Irrigation Ditches and the Poudre River in Weld County, AGU Hydrology Days, March 2010, Fort Collins, Colorado, Paper Presentation.
134. Yen, H., and M. Arabi, 2010 - March, Analysis of Uncertainty in Watershed Modeling Using Markov Chain Monte Carlo Methods: Comparison of Algorithm Efficiency and Applicability, ASCE World Environmental & Water Resources Congress 2010, Providence, RI, Paper Presentation.
135. Ahmadi, M., H. Hill, and M. Arabi, 2010 - May, Optimizing Tradeoffs between Pollution Reduction and Economic Cost for Application of Best Management Practices, ASCE World Environmental & Water Resources Congress 2010, Providence, RI, Paper Presentation.
136. Azizimoghaddam, B. and M. Arabi, 2010 - May, Evaluation of Sensitivity Analysis Methods for Distributed Watershed Modeling, ASCE World Environmental & Water Resources Congress 2010, Providence, RI, Paper Presentation.
137. Osmond, D.L., D. Meals, M. Arabi, D. Hoag, A. Luloff, A. Sharpley, G. Jennings, M. McFarland, J. Spooner, and D. Line, 2010 - June, Briefing to Chief White of NRCS on Lessons Learned, Washington, DC., Invited Lecture.
138. Osmond, D.L., D. Meals, M. Arabi, D. Hoag, A. Luloff, A. Sharpley, G. Jennings, M. McFarland, J. Spooner, and D. Line, 2010 - May, Briefing to NRCS on Lessons Learned, Washington, DC, Invited Lecture.
139. Osmond, D.L., D.L., D. Meals, M. Arabi, D. Hoag, A. Luloff, A. Sharpley, D. Line, G. Jennings, M. McFarland, and J. Spooner, 2010, Conservation Practice Effectiveness and Water Quality, 2010 WRRRI Iowa Conference, Ames, IA, Professional Meeting.
140. Osmond, D., D. Meals, M. Arabi, D. Hoag, A. Luloff, G. Jennings, A. Sharpley, M. McFarland, J. Spooner, and D. Line, 2010, CSREES-CEAP Synthesis: Preliminary Lessons on Protecting Water Quality, 2010 Annual Soil and Water Conservation Society Conference, St. Louis, MO, Professional Meeting.
141. Osmond, D., D. Meals, M. Arabi, D. Hoag, A. Luloff, G. Jennings, M. McFarland, A. Sharpley, J. Spooner, and D. Line, 2010, Landscape-scale Conservation Projects: CEAP, A Case Study. Managing Ag Landscapes II, Denver, CO, Professional Meeting.
142. Osmond, D., D. Meals, M. Arabi, D. Hoag, A. Luloff, G. Jennings, A. Sharpley, M. McFarland, J. Spooner, and D. Line, 2010, Developing Lessons Learned from the 13-CSREES CEAP projects, 2010 USDA Water Conference, Hilton Head, SC, Professional Meeting.
143. Ahmadi, M., and M. Arabi, 2009 - December, Efficiency of Evolutionary Algorithms for Calibration of Watershed Models, 2009 AGU Fall Meeting, San Francisco, CA, Paper Presentation.
144. Arabi, M., 2009 - December, eRAMS: Web-technology for conservation planning, Science to Solutions Workshop-Reducing Nutrient Export to the Gulf of Mexico, Des Moines, IA, Invited Presentation.
145. Arabi, M., 2009 - December, eRAMS- A Participatory GIS for Environmental Management. WEBS Economic and Modelling Planning Meeting. Toronto, Canada, Invited Lecture.
146. Arabi, M., 2009 - October, eRAMS - A web-based technology for end-to-end watershed management and conservation planning, CEAP Steering Committee, Washington, DC, Invited Lecture.
147. Arabi, M., 2009 - October, eRAMS - A web-based technology for end-to-end watershed management and conservation planning, USDA Deputy Under Secretary for Natural Resources and Environment, Washington, DC, Invited Lecture.
148. Storteboom, H., M. Arabi, and A. Pruden, 2009 - August, Source-tracking of Antibiotic Resistance Genes (ARG) in the South Platte River Basin using molecular methods and geospatial analysis,

- EmCon 2009, Ft Collins Colorado, Paper Presentation.
149. Motorova, M., M. Ahmadi, and M. Arabi, 2009 - August, Spatiotemporal Variability of Nutrient Processes under Changing Climate, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  150. Hill, H., A. Spencer, M. Motorova, M. Ahmadi, and M. Arabi, 2009 - August, Modeling the Fate and Transport of Pesticides in Agricultural Watersheds Using SWAT, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  151. Hill, H., M. Ahmadi, and M. Arabi, 2009 - August, A Targeting Strategy for Cost-Effective Implementation of Watershed Plans, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  152. Carlson, K. and M. Arabi, 2009 - August, Irrigation Ditch Facilitated Transport of Veterinary Pharmaceutical Compounds in a Semi-Arid Watershed, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  153. Ahmadi, M. and M. Arabi, 2009 - August, Multisite-Multivariate Calibration of Watershed Models, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  154. Azimoghaddam, B. and M. Arabi, 2009, A framework for sensitivity analysis of distributed watershed models, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  155. Sanadhya, P., M. Ahmadi, and M. Arabi, 2009 - August, Consequences of climate change on water yield in mountainous snow-dominated Colorado watersheds, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  156. Boyd, E. and M. Arabi, 2009 - August, Role of spatial aggregation on sediment processes in SWAT, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  157. Maringanti, C., I. Chaubey, B. Engel and M. Arabi, 2009 - August, Development of a tool to estimate Best Management Practices (BMP) efficiency using SWAT, 5th International SWAT Conference, Boulder, Colorado, Paper Presentation.
  158. Storteboom, H., M. Arabi, and A. Pruden. 2009 - May, Characterizing the sources and processes of Antibiotic Resistance Genes (ARG) fate and transport in the Poudre River watershed using molecular methods and geostatistical tools, American Society for Microbiology General Meeting, Philadelphia, PA, Paper Presentation.
  159. Arabi, M., 2009 - April, Web Technology for End-To-End Environmental Management, Natural Resource Ecology Laboratory (NREL), Ft Collins, CO, Invited Lecture.
  160. Arabi, M., 2009 - March, eRAMS: A Web Technology for End-To-End Environmental Management, Colorado Water Institute, Ft Collins, CO, Invited Lecture.
  161. Motorova, M. and M. Arabi, 2009 - March, Study of Watershed Processes Under Varying Climatic Regimes: Role of Spatial Scale, Hydrology Days, Ft Collins, Colorado, Paper Presentation.
  162. Boyd, E. and M. Arabi, 2009 - March, Implications of input spatial aggregation on a watershed model, Hydrology Days, Ft Collins, Colorado, Paper Presentation.
  163. Ahmadi, M. and M. Arabi, 2009 - March, On the Auto-Calibration of Watershed Models, Hydrology Days, Fort Collins, Colorado, Paper Presentation.
  164. Rurak, M., J. Niemann, B. Greimann, and M. Arabi, 2009 - March, Global Sensitivity Analysis of the SRH-1D Sediment Transport Model Applied to Two Physical Experiments, Hydrology Days, Ft Collins, Colorado, Paper Presentation.
  165. Sanadhya, P. and M. Arabi, 2009 - March, Global Sensitivity Analysis for the Hydrology of Major River Basins in Colorado, Hydrology Days, Ft Collins, Colorado, Paper Presentation.
  166. Hill, H. and M. Arabi, 2009 - March, Challenges of Modeling the Fate and Transport of Pesticides in a Midwest Watershed, Hydrology Days, Ft Collins, Colorado, Paper Presentation.
  167. Azimoghaddam, B. and M. Arabi, 2009 - March, Global Sensitivity Analysis for Watershed Modeling: A Comparative Study, Hydrology Days, Ft Collins, Colorado, Paper Presentation.

168. Spencer, A. and M. Arabi, 2009 - March, The Impact of Land Use Change on Watershed Processes at Varying Spatial Scales, Hydrology Days, Ft Collins, Colorado, Paper Presentation.
169. Quansah, J., B. Engel, M. Arabi, I. Chaubey, and C. Maringanti, 2009 - February, Modeling and Optimization Approach to Managing Critical Pollution Areas within Watersheds, USDA-NIFA National Water Conference, St. Louis, MO, Paper Presentation.
170. Chaubey, I., C. Maringanti, M. Arabi, B. Engel, and J. Quansah, 2009 - February, Development of a multi-objective optimization tool for the selection and placement of BMPs for pesticide control, USDA-NIFA National Water Conference, St. Louis, MO, Paper Presentation.
171. Arabi, M. and J. Davis, 2008 - October, Tradeoffs and targets in implementing conservation practices, Symposium- Research Needs to Improve Soil Conservation Models, GSA-SSSA-ASA-CSSA Joint meeting, Houston, TX, Invited Presentation.
172. Arabi, M., 2008 - May, Analysis of uncertainty in evaluation of watershed management practices, ASCE World Environmental & Water Resources Congress, Honolulu, Hawaii, Paper Presentation.
173. Osmond, D., M. Arabi, D. Hoag, G. Jennings, D. Line, A. Luloff, M. McFarland, D. Meals, A. Sharpley, and J. Spooner, 2008 - February, CEAP: Synthesis and Future Directions, USDA-CSREES Water Conference, Reno, Nevada, Invited Lecture.
174. Maringanti, C., I. Chaubey, and M. Arabi, 2008 - June, Development of a Multi-Objective Optimization Tool for the Selection and Placement of BMPs for Pesticide Control, ASABE Annual International Meeting, Providence, RI, Paper Presentation.
175. Arabi, M., B. Engel, and J. Frankenberger, 2007 - July, A Tool for Identification of Model Structure, 4th International SWAT Conference, UNESCO-IHE, Institute for Water Education, Delft, the Netherlands, Paper Presentation.
176. Arabi, M., R.S. Govindaraju, B. Engel, J. Frankenberger, and M. Hantush, 2007 - July, Sensitivity analysis of sediment processes with SWAT, 4th International SWAT Conference, UNESCO-IHE, Institute for Water Education, Delft, the Netherlands, Paper Presentation.
177. Arabi, M., R.S. Govindaraju, B. Engel, and M. Hantush, 2007 - May, Optimization tool for allocation of watershed management practices for sediment and nutrient control, WATERMATEX 2007, 7th International Water Association Symposium on Systems Analysis and Integrated Assessment in Water Management, Washington DC, Refereed Paper Presentation.
178. Arabi, M., J.R. Frankenberger, B. Engel, and C. Baffaut, 2006 - July, Representation of Agricultural BMPs with SWAT, 2006 ASABE Annual International Meeting, Portland, Oregon, Paper Presentation.
179. Arabi, M., J.S. Schmidt, and R.S. Govindaraju, 2005 - May, A process-based transfer function approach to model tile drain hydrographs, World Water and Environmental Resources Congress, ASCE, Anchorage, Alaska, Paper Presentation.
180. Arabi, M., R.S. Govindaraju, M.M. Hantush, and B. Engel, 2005 - June, Role of watershed subdivision on evaluation of long-term impact of best management practices on water quality, Water Environment Federation, Philadelphia, PA, Paper Presentation.
181. Arabi, M., R.S. Govindaraju, and M. Hantush, 2004 - June, Examination of the role of physical resolution and scale on sediment and nutrient yields, World Water and Environmental Resources Congress, ASCE, Salt Lake City, UT, Paper Presentation.
182. Bracmort, K.S., M. Arabi, B. Engel, J.R. Frankenberger, and J.G. Arnold, 2004 - August, Modeling the long-term impacts of BMPs in an agricultural watershed, ASAE Annual International Meeting, Ottawa, Canada, Paper Presentation.

## **PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

### *Professional Membership:*

- Member, surface Water Hydrology Committee, ASCE, 2008-current
- Associate Member, American Society of Civil Engineers (ASCE), 2006-current
- Member, American Society of Agricultural and Biological Engineers (ASABE), 2007-current
- Member, American Geophysical Union (AGU), 2007-current
- Member, American Water Resources Association (AWRA), 2008-current

### *Grant review:*

- National Science Foundation (NSF)
- U.S. Department of Agriculture-National Institute for Food and Agriculture (USDA-NIFA)
- Environmental Protection Agency (EPA)

### *Journal Review:*

- Water Resources Research
- Advances in Water Resources
- Journal of Hydrology
- Hydrological Processes
- Journal of Environmental Quality
- Journal of Water Resources Planning and Management
- Journal of Hydrologic Engineering
- Journal of American Water Resources Association
- Agricultural Water Management; water Management
- Transactions of ASABE
- Agriculture Economics & Environment
- Hydrological Sciences Journal
- Environmental Research Letters

## **Courses Taught at CSU**

- CIVE 203- Engineering Decision Analysis
- CIVE 576: GIS and GPS for Engineering Applications
- CIVE 622: Risk Analysis of Water and Environmental Systems
- CIVE 546: Water Resources Systems Analysis
- CIVE 440: Nonpoint Source Pollution