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Education

1. B.Tech. Civil Engineering, Indian Institute of Technology Madras, India, 2000-2004. Project guide: Dr. Ligy Philip
2. M.S. Civil Engineering, Auburn University, USA, 2004-2007. Thesis title: "Analytical solutions for sequentially coupled multi-species reactive transport problems". Advisor: Dr. Prabhakar Clement (now at Alabama)
3. PhD. Civil and Environmental Engineering, University of Illinois Urbana Champaign, USA, 2007-2013. Dissertation title: "Optimality and resilience in patterns of carbon allocation and growth in vegetation under acclimation response to climate change". Advisor: Dr. Praveen Kumar

Professional Experience

1. Research and teaching assistant, Department of Civil Engineering, Auburn University, USA (2004-2007)
2. Research and teaching assistant, Department of Civil and Environmental Engineering, University of Illinois Urbana Champaign, USA (2007-2013)
3. Post doctoral research associate, Institute for Genomic Biology, University of Illinois Urbana Champaign, USA (2013-2017)
4. Research scientist, Environmental and Molecular Sciences Laboratory, Pacific Northwest National Laboratory, USA (2017-2018)
5. Assistant professor, Department of Civil Engineering, Indian Institute of Technology Madras, India (2018-Present)

Awards and honours

1. Outstanding Graduate Student, Department of Civil Engineering, Auburn University, USA, 2007
2. CH2M Hill Fellow, Auburn University, USA, 2007
3. Montgomery-Watson-Harza Consulting Engineers/AEESP Award, for outstanding Master's thesis in environmental engineering and science, USA, 2008
4. Civil and Environmental Engineering alumni assistantship for teaching excellence, University of Illinois Urbana Champaign, USA, 2012

Research proposals

1. V. Srinivasan, "Multi scale plant modeling", 2017-2018, Co-PI, US Department of Energy LDRD grant, Pacific Northwest National Laboratory, USA.

2. V. Srinivasan, "Influence of vegetation canopy architecture on dynamics of spatio-temporal light distribution and its effect on land-biosphere-atmosphere fluxes of energy, carbon, and water", 2017-2018, PI, US Department of Energy LDRD grant, Pacific Northwest National Laboratory, USA.
3. V. Srinivasan, "Investigating the influence of crop canopy architecture on the dynamics of spatio-temporal light distribution and its effect on photosynthesis, transpiration and crop yield", 2019-2022, PI, Department of Science and Technology SERB ECR grant, India.
4. V. Srinivasan, "3D modeling of crop canopy architecture: Spatio-temporal heterogeneity in photosynthesis and transpiration in scaling from leaf to canopy", 2019-2022, PI, Indian Institute of Technology, NFSG grant, India.

Peer reviewed journal publications

1. Domenico solution – Is it valid? V. Srinivasan, T.P. Clement, and K.K. Lee. Ground Water, 45(2): 136-146, May 2007.
2. Analytical solutions for sequentially coupled one-dimensional reactive transport problems – Part I: Mathematical derivations. V. Srinivasan, and T.P. Clement. Advances in Water Resources, 31(2): 203-219, Feb 2008.
3. Analytical solutions for sequentially coupled one-dimensional reactive transport problems – Part II: Special cases, implementation and testing. V. Srinivasan, and T.P. Clement. Advances in Water Resources, 31(2): 219-232, Feb 2008.
4. Emergent and divergent resilience behavior in catastrophic shift system. V. Srinivasan, and P. Kumar. Ecological Modelling, 298:87-105, Feb 2015.
5. Decreasing, not increasing, leaf area will raise crop yields under global atmospheric change. V. Srinivasan, P. Kumar, and S. Long. Global Chance Biology, 10.1111/gcb.13526, Nov 2016.
6. Crops in silico: A prospectus from the Plants in silico symposium and workshop. S. Long, A. Marshall-Colon, D. Allen, G. Daniel A. Beard, B. Benes, A. Christensen, D. Cox, J. Hart, P. Hirst, K. Kannan, D. Katz, J. Lynch, A. Millar, B. Panneerselvam, N. Price, P. Prusinkiewicz, D. Raila, R. Shekar, S. Shrivastava, D. Shukla, V. Srinivasan, M. Stitt, E. Voit, S. Von Caemmerer, Y. Wang, X. Yin, and X. Zhu. Frontiers in Plant Science, section Plant Systems and Synthetic Biology, 8:786, May 2017
7. Advanced visualization can reveal emergent properties in agriculture data and lead to new strategies for food security. A. Christinsen, V. Srinivasan, J. Hart, and A. Marshall-Colon. Nutrition reviews, 76(5): 332-347, May 2018.
8. Decomposition analysis on soybean productivity increase under elevated CO2 using 3-D canopy model reveals synergestic effects of CO2 and light in photosynthesis. Q. Song, V. Srinivasan, S. Long, XG. Zhu. Annals of Botany, mcz163, October 2019.

Book chapters

1. Review of analytical methods of modeling contaminant fate and transport. V. Srinivasan, T.P. Clement. edited by M.M. Aral and S.W. Taylor, Groundwater Quantity and Quality Management, ASCE 2011.
2. A Perspective on a Paradigm Shift in Plant Photosynthesis: Designing a Novel Type of Photosynthesis in Sorghum by Combining C3 and C4 Metabolism. Jansson C, Mockler T, Vogel JP, De Paoli H, Hazen SP, Srinivisan V, Cousins A, Lemaux P, Dahlberg J, Brutnell T. edited by Barber J, Ruban AV, Nixon PJ, In Oxygen Production and Reduction in Artificial and Natural Systems, World Scientific Publishing Co. Pte, Ltd, New Jersey, U.S.A. 2019.

Conference presentations

1. M.M. Shihabudheen, V. Srinivasan, and L. Philip, "Performance evaluation of a system treating BTX under substrate versatility condition", presented at the Advances in Environmental Science and Engineering, IIT Bombay, India, Dec 2003.
2. T.P. Clement, K.K. Lee, and V. Srinivasan, "Analytical tools for modeling natural attenuation processes at chlorinated solvent contaminated sites", presented at the ASCE Environmental and Water Resources Conference, Alaska, USA, May 2005.

3. L. Brakefield, V. Srinivasan, C.R. Quezada, and T.P. Clement. "Analytical models for predicting reactive transport at chlorinated solvent contaminated sites", presented at the Hydrological sciences for Managing Water Resources in the Asian Developing World conference, Guangzhou, China, June 2006.
4. V. Srinivasan, T.P. Clement, and K.K. Lee. "Analysis of the error associated with the Domenico solution", Eos Trans. AGU 87(52), Fall meeting, Abstract H41B-0407, Dec 2006.
5. V. Srinivasan, and T.P. Clement. "Analytical solutions for coupled reactive transport equations", presented at the World Environmental and Water Resources Congress, Tampa, Florida, USA, May 2007.
6. V. Srinivasan, D. Drewry, P. Kumar and M. Sivapalan. "Investigating vegetation dynamics when scaled from plant to ecosystem" Eos Trans. AGU 89(53), Fall meeting, Abstract H13B-0916, Dec 2008.
7. V. Srinivasan, and T.P. Clement, "Analytical solutions to sequentially coupled reactive transport problems" presented at the AEESP conference, Iowa city, Iowa, USA, July 2009.
8. V. Srinivasan, D. Drewry, P. Kumar, and M. Sivapalan. "Optimality based dynamic plant allocation model: Predicting acclimation response to climate change" Eos Trans. AGU 90(52), Fall meeting, Abstract B21C-02, Dec 2009.
9. V. Srinivasan, P. Kumar, D. Drewry, and M. Sivapalan. "Improved vegetation model for predicting land-surface fluxes under climate-change", presented at the EWRI-ASCE conference, India Jan 2010.
10. V. Srinivasan, P. Kumar, and M. Sivapalan. "Optimality versus resilience, in patterns of carbon allocation within plants under climate change", presented at 2010 Fall Meeting, AGU, San Francisco, California, USA, 13-17 Dec 2010.
11. V. Srinivasan, and P. Kumar. "A framework of resilience measures in catastrophic shift systems", presented at 2011 Fall Meeting, AGU, San Francisco, California, USA, 5-9 Dec 2011.
12. P. Kumar, V. Srinivasan, P.V.V. Le, D. Drewry. "Ecological acclimation and hydrologic response: Problem complexity and modeling challenges", presented at the EGU General Assembly 2012, Vienna, Austria, 22-27 April, 2012.
13. V. Srinivasan, P. Kumar, and M. Sivapalan. "Resilience induced sub optimal carbon allocation in plants", presented at the CWMR conference, Urbana-Champaign, Illinois, USA, 17-21 Jun 2012.
14. V. Srinivasan, and P. Kumar. "Acclimation dynamics and sub-optimality in carbon allocation for C3 and C4 plants subject to growth under elevated CO2", presented at 2012 Fall Meeting, AGU, San Francisco, California, USA, 3-7 Dec 2012.
15. V. Srinivasan, P. Kumar and S. Long. "Fewer not more leaves – Key to obtaining the needed jump in crop yield potential and water use efficiency", presented at 2013 Fall Meeting, AGU, San Francisco, California, USA, 9-13 Dec 2013.
16. P. Kumar, and V. Srinivasan. "Quantitative measures of resilience and vulnerability", presented at 2014 EGU general assembly conference, Vienna, Austria, 27 Apr - 2 May 2014.
17. V. Srinivasan. "Fewer not more leaves: Key to obtaining the needed jump in soybean crop yield potential", presented at the Gordon research conference: CO2 assimilation in plant: Genome to Biome, Waterville Valley, New Hampshire, USA, 8-13 Jun 2014.
18. V. Srinivasan, Y. Xu, A. Ellis, A. Christensen, K. Borkiewicz, D. Cox, J. Hart, S. Long, A. Marshall-Colon. "Light distribution in plant canopies: A comparison between 1-D multi-layer modeling approach and 3-D ray tracing", presented at 2016 Fall Meeting, AGU, San Francisco, California, USA, 11-15 Dec 2016.
19. V. Srinivasan, A. Christensen, K. Borkiewicz, Y. Xu, A. Ellis, B. Paneerselvam, K. Kannan, S. Srivastava, Y. Wang, D. Cox, J. Hart, A. Marshal-Colon, and S. Long. "(Invited talk) Crops in silico: A community wide multi-scale computational modeling framework of plant canopies", presented at 2016 Fall Meeting, AGU, San Francisco, California, USA, 11-15 Dec 2016.
20. U. Ruiz-Vera, B. Campbell, V. Srinivasan, R. Stupar, A. Lorentz, and D. Ort. "The impact of short petiole length in soybean yield", presented at Phenome 2017 conference, Tuscon, Arizona, USA, 10-14 Feb 2017.
21. V. Srinivasan, C. Pignon, and S. Long. "Making C4 crops more water efficient under current and future climate: Tradeoffs between carbon gain and water loss", presented at the 2017 Fall Meeting, AGU, New Orleans, Louisiana, USA, 11-15 Dec 2017.
22. V. Srinivasan, P. Handakumbura, N. Ward, W. Wang, Nate. Mcdowell, V. Bailey, and C. Jansson. "Comparative analysis between salinity and drought stress on Seteria plants", presented at the Gordon research conference: Salt and water stress in plants, Waterville valley, New Hampshire, USA, 3-8 June 2018.

23. P. Saravanane, A. Das, V. Srinivasan. "Advances in imaging and modeling of plants", presented at the AFITA/WCCA 2018 conference on research frontiers in precision agriculture, Indian Institute of Technology Bombay, Mumbai, India, 24-26 Oct 2018.
24. V. Srinivasan. "Food Security Under Climate Change: Advances in Process Based Crop Optimization" presented at the AFITA/WCCA 2018 conference on research frontiers in precision agriculture, Indian Institute of Technology Bombay, Mumbai, India, 24-26 Oct 2018.
25. A. Das, V. Srinivasan. "3 D crop architecture modeling: A new tool to achieve food security", presented at the Water Future conference, ITSc Banglore, Bengaluru India, 24-27 Sept 2019.
26. A. Das, V. Srinivasan "3D generic grass crop canopy architecture model", presented at the Rourkee Water Conclave, IIT Rourkee and NIK Rourkee, 26-28 Feb 2020.
27. J. Sangani, V. Srinivasan "New and improved analytical solution for 3D contaminant transport in porous medium", presented at the Rourkee Water Conclave, IIT Rourkee and NIK Rourkee, 26-28 Feb 2020.
28. V. Pathak, V. Srinivasan "Modelling the effect of leaf water potential on stomatal conductance", presented at the Rourkee Water Conclave, IIT Rourkee and NIK Rourkee, 26-28 Feb 2020.