

Balaji Narasimhan

Professor
Department of Civil Engineering, Indian Institute of Technology
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Education

Ph.D. Biological and Agricultural Engineering, Texas A&M University, 2004.

M.S. Biosystems Engineering, University of Manitoba, Winnipeg, Canada. 1999.

B.E. Agricultural Engineering, Tamil Nadu Agricultural University, Trichy, India. 1997.

Research Interests

- Modelling the impact of landuse and climate change on hydrology
- Development of a flood, drought assessment and forecast system using GIS, remote sensing and hydrologic / hydraulic / crop growth models
- Energy fluxes/Evapotranspiration/Soil moisture from thermal remote sensing data for irrigation water management and drought assessment
- Spatially distributed radar/satellite rainfall data for hydrologic / hydraulic modelling
- Linking terrestrial and aquatic biogeochemical models

Awards and Honors

- 2013 Young scientist award, 2013 International SWAT conference at Toulouse, France.
- 2012 Distinguished achievement award, Developers of the SWAT model (USDA-ARS and Texas A&M University), 2012 International SWAT conference at New Delhi.
- 2010 My PhD scholar Ms. V. M. Bindhu got the 2nd best paper award for the paper presented during the Indian Society of Remote Sensing (ISRS) symposium, Sep.17-19, 2009, Nagpur, INDIA.
- 2003 Directors award for Best Graduate Student, Spatial Sciences Laboratory, Texas Agricultural Experiment Station, USA.
- 2003 Nominated for outstanding graduate student (Research) in College of Agriculture, Texas A&M University, USA.
- 2001 Bill and Rita Stout International Graduate Student award for academic distinction, Texas A&M University, USA.
- 1997 Ranked second in the graduating class (1992-1997), B.E (Agri), Tamil Nadu Agricultural University, India.

Research Experience

Professor, Department of Civil Engineering, Indian Institute of Technology, INDIA. From March 2019 to Present

- Gridded Hydrologic modelling framework using SWAT for India
- Spatially distributed radar rainfall data for flood forecasting
- Improved agricultural weather forecasting for better irrigation water management
- Inverse modelling using remotely sensed ET and crop growth model for estimating irrigation efficiency
- Impact of climate change on river basin hydrology

Associate Professor, Department of Civil Engineering, Indian Institute of Technology, INDIA. From August 2014 to February 2019

- Flood modelling and mitigation of December 2015 floods at Chennai Airport
- Flood forecasting system for river basins around Chennai

- Hydrologic studies for restoration of lakes and water bodies in the IT hub
- Hydrologic modelling of Chennai river basin
- Estimation of potential ET from thermal remote sensing
- Impact of climate change on river basin hydrology

Assistant Professor, Department of Civil Engineering, Indian Institute of Technology, INDIA. From October 29, 2007 to July 2014

- Estimation of potential ET from thermal remote sensing
- Impact of climate change on river basin hydrology
- Development of a drought assessment and forecast system using GIS
- Changes in spatial and temporal trends of rainfall and temperature in India
- Uncertainty analysis using spatially distributed radar/satellite rainfall data on hydrology

Research Assistant Professor, Spatial Sciences Laboratory, Texas A&M University, USA
May 2006 – September 2007

- Evaluating point, non-point source nutrient and sediment loading in North-Texas lakes for developing Best Management Practices (BMP's) using SWAT model
- Developing a drought assessment tool for Texas for Texas Water Development Board.
- Developing a digital climatic-atlas of Texas using GIS techniques, for Texas Water Development Board
- Developing and writing competitive research grants
- Guiding/Advising/Supervising research associates and graduate students

Post-Doctoral Research Associate, Spatial Sciences Laboratory, Texas A&M University, USA
June 2004 – April 2006

- Uncertainty analysis using spatially distributed NEXRAD radar rainfall data on hydrology and water quality.
- Evaluating and improving methods used in autocalibration algorithms for hydrologic models
- Modeling the fate and transport of a soil applied corn herbicide (Isoxoflutole) in surface water bodies using SWAT in 19 watersheds located in Midwestern United States for Bayer CropScience
- Support continuing education workshop/training activities in Soil and Water Assessment Tool (SWAT) and remote sensing for researchers, Local, State and Federal agencies
- Providing operational support to Texas Forest Service for wildfire risk assessment for the entire state of Texas using GIS, remote sensing and water balance models.

Graduate Research Assistant, Spatial Sciences Laboratory, Texas A&M University, USA
Sep.1999 – May 2004

- Developed a drought assessment system for Texas using hydrologic model, GIS and remote sensing (Dissertation proposal funded by Texas higher education coordination board)
- Designed and Implemented a GIS based model for operational wildfire risk assessment using NEXRAD rainfall data for Texas Forest Service rendered through internet using ArcIMS (<http://twc.tamu.edu/kbdi.aspx>)
- Developed a simplified method for estimating Potential EvapoTranspiration from NOAA-AVHRR satellites using minimal ground based observation
- Classified remote sensing data (LANDSAT) for obtaining landcover classes for the Brush management/water yield feasibility studies of eight watersheds in Texas
- Implemented a plant disease risk assessment model for Sorghum Ergot using weather data and NEXRAD rainfall data in GIS for Texas Panhandle.
- Assisted in developing/writing research grant proposals

Graduate Research Assistant, Biosystems Engineering, University of Manitoba, Canada.
Sept.1997 – August.1999

- Designed soil-column experiments for studying the transport of water and salts under the influence of electricity with the goal of evaluating the feasibility of creating electrokinetic barriers for contaminant transport
- Developed a two dimensional finite element model to study the transport of water and contaminants under the influence of electricity
- Assisted in collection of soil core samples from swine lagoon bottoms for Measuring seepage beneath manure storage lagoons in Manitoba

Graduate Teaching Academy, Texas A&M University, Spring 2004

- Certificate program for higher education teaching enhancement organized by Graduate Teaching Academy, Office of Graduate Studies, Texas A&M University (TAMU). This program includes 10 seminars that explore various learning styles, teaching techniques and suggestions for improving communication for enhancing the teaching as well as learning experience. It also has a teaching mentor program to observe and learn from a skilled teacher.

Graduate Teaching Assistant, Spatial Sciences Laboratory, Texas A&M University, USA
Fall 2002

- Taught remote sensing and image processing techniques in the lab sections of a graduate level course FRSC 608 at TAMU (Fall 2002). I along with another graduate student developed the laboratory lab exercises for each week using ERDAS Imagine. Before each practical exercise I lectured the students on the theoretical basis of each technique for enhancing the students understanding of the exercises.

Graduate Teaching Assistant, Spatial Sciences Laboratory, Texas A&M University, USA
Fall 2000

- Taught GIS skills/software in the lab sections of a graduate level course FRSC651 at TAMU (Fall 2000). I developed the laboratory lab exercises for each week using ArcView, graded their lab exercises, homework and class exams. I also provided guidance and assistance to students on their final class projects.

Teaching Experience

Undergraduate Courses

1. CE2080 Surveying
2. CE2100 Surveying Lab
3. CE3030 Water Resources Engineering
4. CE4030 Hydraulic and Environmental Engineering Lab
5. CE4420 Introduction to GIS and Remote Sensing
6. CE4610 Water Management

Graduate Courses

7. CE5080 Geographical Information System
8. CE5500 Hydrosystems Computational Laboratory
9. CE5510 Irrigation Technology
10. CE5960 Remote Sensing of Earth Resources

11. CE5550 Urban Hydrology and Storm Drainage Design and Management

Extramural Grants and Contracts

Sponsored Research Projects

1. K. P. Sudheer, B. Narasimhan, Indumathi Nambi and Venkatraman Srinivasan. 2018. Climate change impact assessment on the water resources in the coastal areas of Godavari and Chennai river basins. Department of Science and Technology, Gol. Valued at INR 89 Lakhs for 5-years.
2. B. Narasimhan. 2017. A comprehensive assessment of Impacts due to climate change on Water Availability in Tamiraparani River Basin, Tamil Nadu and development of Best Irrigation and Crop Management Strategies using coupled hydrologic and crop growth models that increases resilience. Indian Council for Agricultural Research (ICAR). Valued at INR 36.8 lakhs for 2-years.
3. B. Narasimhan, Balaji. C., and Sachin S. Gunthe. 2017. Dynamical downscaling of regional climate over India to assess the climate change impact on water resources using Weather Research Forecasting Model. Ministry of Water Resources, Gol. Valued at INR 44.7 Lakhs for 2-years.
4. B. Narasimhan, Sachin Gunthe and B.S. Murty. 2016. Design of an expert system for flood forecasting and management for the city of Chennai. Office of the Principal Scientific Adviser, GOI. In collaboration with IIT Bombay and Anna University. IIT Madras Valued at 100 Lakhs for 18 months.
5. B. Narasimhan. 2016. Development of Near-Real-Time Hydrological Modelling System for India based on Ensemble of SWAT simulations. NRSC, Hyderabad. Valued at Rs.18.60 lakhs for 36 months.
6. B. Narasimhan. 2015. Spatial disaggregation and inverse modelling to quantify field level irrigation water distribution and efficiency across a command area growing paddy using an integrated thermal remote sensing and crop growth modelling approach. ISRO-IITM Space Cell. Valued at Rs.33.55 lakhs for 36 months.
7. K.P.Sudheer, B.Narasimhan and Indumathi Nambi. 2015. Sustainable water resources management of Chennai basin under changing climate and land use. IGCS-DST. Valued at Rs.47 lakhs for 18 months.
8. B. S. Murty, B.Narasimhan and Venu Chandra. 2014. Modelling the effects of land use and climate change upon in-stream hydraulics in mountainous streams in rapidly urbanizing regions (close to Pune) of the Western-Ghats. IGCS-DST. Valued at Rs.49.54 lakhs for 2 years.
9. Indumathi Manivannan Nambi, Srinivasan K, Sudheer K P, Soumendra Nath Kuiry, Sachin S Gunthe, Sathyanarayana N Gummadi, Balaji Narasimhan, Srinivas Reddy K, Doble Mukesh, Ravi Krishna R, Venu Chandra, Raghuram Chetty, and Shiva Nagendra S M. 2013. Centre for Environment Technology Dissemination, Demonstration and R&D for Industrial pollution Abatement. Tamil Nadu Pollution Control Board, Govt. of Tamil Nadu, Valued at Rs. 5 crore for 3 years.
10. Koshy Varghese, Lakshman Rao, C., Sudheer, K. P., Narasimhan, B., and Palani Ramu. 2012. Enhancement and field trials of free and open source GIS software. Department of Land Resources, Gol. Valued at Rs.56.47 lakhs for 3 years.
11. B. Narasimhan. June 2011. Development and verification of a surface energy balance model using thermal remote sensing data for assessment of crop water use and irrigation efficiency. Dept. of Science and Technology. Valued at Rs.22.35 lakhs for 3 years.
12. Ligy Philip, B.Narasimhan, Prema Rajagopalan, Shiva Nagendra S M, Ravi Krishna R, Murty B S, and Doble Mukesh. September 2010. Ganga River Basin Management Project (GRBMP) – A Pan IIT Project. Ministry of Environment and Forest. Valued at Rs.70.41 lakhs for 5 years.
13. About 13 faculty members from IIT Madras are Investigators in this project. March 2010. Water and Waste management of Chennai Basin. Start-up grant given by IIT Madras Research Foundation for the Centre for sustainable Development. Valued at Rs.25 lakhs for 12 months.

14. Philip, L., K. N. Satyanarayana, A. Mahalingam, B. Narasimhan, I. Nambi, S. Mohan, B. S. Murty, S. M. Shiva Nagendra, K. Srinivasan, K. P. Sudheer, G. Suresh Kumar, K. Gopalakrishna and A. Thillai Rajan. May 2009. Decentralised waste water management, benchmarking of public utilities and PPP. Ministry of Urban Development. Valued at Rs.380 lakhs for 18 months.
15. Narasimhan, B. December 2007. Estimation of Evapotranspiration using Satellite Remote Sensing Data. New Faculty Grant sponsored by the Industrial Consultancy and Sponsored Research (IC&SR), Indian Institute of Technology Madras. Valued at Rs. 5 Lakhs for 3-years.

Consultancy Projects

1. Indumathi Nambi and B. Narasimhan. 2016. Siruseri lakes Watershed Restoration for sustainability and flood protection. Technical feasibility study and advise to Tata Consulting Services at Siruseri. Valued at Rs.20 lakhs over 3-years.
2. Narasimhan, B. 2016. Development of a real-time reservoir inflow forecast system using a hydrologic model based on input from ensemble weather forecasts for improving reservoir operation decision at some pilot basins Tamil Nadu. Valued at Rs.17.25 lakhs for 12 months.
3. Narasimhan, B., Soumendra Kuiry, and K.P.Sudheer. 2016. Comprehensive scientific study using hydrologic, hydraulic models and GIS to suggest improvements to the drainage systems inside and outside the airport premises of Chennai, as a response to Chennai December 2015 floods. Valued ad Rs.74.18 lakhs for 9 months.
4. Murty, B.S. and B. Narasimhan. 2016. Proof checking of channel related designs of Amanishah Nallah, Jaipur. Valued at Rs.8 lakhs for 8 months.
5. Sudheer, K.P., B. Narasimhan and K. Srinivasan. 2016. Morphological Studies for Rivers Krishna and Tungabhadra using Remote Sensing Technique. Valued at Rs.96.5 lakhs for 23 months.
6. Thyagaraj, T., S. R. Gandhi, K. P. Sudheer, R. G. Robinson and B. Narasimhan. 2016. Hydrological and Geotechnical Analysis for Royal Enfield Industrial Site at Vallam Vadagal. Valued at Rs.6 lakhs for 12 months.
7. Sudheer. K. P. and B. Narasimhan. 2014. Evaluation of flood mitigation schemes implemented in the Kuttanad region in Kerala State. Irrigation Department, Govt. of Kerala. Valued at Rs. 75 lakhs for four years.
8. Robinson, G., S. R. Gandhi, B. Narasimhan and K. P. Sudheer. June 2011. Design of embankment and cut slopes for the test tract at Oragadam. RITES Ltd., Chennai. Valued at Rs.9.9 lakhs for 3 months.
9. Narasimhan, B. September 2010. CLIMARICE II: SWAT modelling and online database creation. Bioforsk, Norway. Valued at 15.87 lakhs for 2.5 years
10. Murty, B. S., K. P. Sudheer and B. Narasimhan. September 2009. Model testing for construction of H. L. Bridge over River Koshi near Saharsa in the state of Bihar. Bihar Rajya Pul Nirman Nigam Ltd. (BRPNL). Valued at Rs. 63 lakhs for 6 months.
11. Murty, B. S., K. P. Sudheer and B. Narasimhan. September 2009. Study for Modernizing the Thanneermukkom Bund and Thottappally Spillway for Efficient Water Management in Kuttanad Region, Kerala. Govt. of Kerala. Valued at Rs. 35 Lakhs for 18 months.

Funded while at Texas A&M (\$620,130)

1. Narasimhan, B. and R. Srinivasan. September 2007. Landuse/Landcover change assessment of Texas Coastal Region. Texas Water Development Board. Budgeted at \$30,000 for 1-year.
2. Narasimhan, B. and R. Srinivasan. September 2006. Landuse/Landcover change assessment of Texas Coastal Region. Texas Water Development Board. Budgeted at \$27,000 for 1-year.
3. Narasimhan, B. and R. Srinivasan. September 2005. Assessment of NEXRAD rainfall data along Texas Coast. Texas Water Development Board. Budgeted at \$11,130 for 1-year.

4. Quiring, S., J. W. Nielsen-Gammon, R. Srinivasan, T. Miller., and B. Narasimhan. September 2005. Drought Monitoring Index for Texas. Texas Water Development Board. Budgeted at \$100,000 for 1-year.
5. Srinivasan, R., Quiring, S., J. W. Nielsen-Gammon, B. Narasimhan, and J. Jacobs. September 2005. Digital Climatic Atlas of Texas. Texas Water Development Board. Budgeted at \$60,000 for 1-year.
6. Srinivasan, R., C. Santhi, and B.Narasimhan. March 2005. Best Management Practice (BMP) verification using observed water quality data and watershed planning for implementation of BMPs. Budgeted at \$237,000 for 3-years. Environmental Protection Agency (EPA) through Texas State Soil and Water Conservation Board.
7. Srinivasan, R. and B. Narasimhan. August 2001. A Real-Time Drought Assessment and Forecasting System for Texas using GIS and remote sensing. Texas Higher Education Coordination Board under Advanced Technology Program. Budgeted at \$150,000 for three years. Funded. (My Doctoral Dissertation Proposal).
8. Narasimhan, B. and R. Srinivasan. November 2000. Determination of Regional Scale Evapotranspiration of Texas from NOAA - AVHRR satellite. Texas Water Resources Institute. Graduate fellowship \$5,000.

Refereed Scopus Cited Journal Publications

1. Palanisamy, B., Shaurabh, S., Narasimhan, B. Analysis of Challenges and Opportunities for Low-Impact Development Techniques in Urbanizing Catchments of the Coastal City of Chennai, India: Case Study (2020) Journal of Hydrologic Engineering, 25 (10), DOI: 10.1061/(ASCE)HE.1943-5584.0001995
2. Mohanasundaram, S., Udmale, P., Shrestha, S., Baghel, T., Doshi, S.C., Narasimhan, B., Suresh Kumar, G.A new trend function-based regression kriging for spatial modeling of groundwater hydraulic heads under the sparse distribution of measurement sites. (2020) Acta Geophysica, 68 (3), pp. 751-772. DOI: 10.1007/s11600-020-00427-y
3. Shanmugam, M., Suresh Kumar, G., Narasimhan, B., Shrestha, S. Effective saturation-based weighting for interblock hydraulic conductivity in unsaturated zone soil water flow modelling using one-dimensional vertical finite-difference model (2020) Journal of Hydroinformatics, 22 (2), pp. 423-439. DOI: 10.2166/hydro.2019.239
4. Joseph, N., Preetha, P.P., Narasimhan, B. Assessment of environmental flow requirements using a coupled surface water-groundwater model and a flow health tool: A case study of Son river in the Ganga basin. (2020) Ecological Indicators, art. no. 107110, . DOI: 10.1016/j.ecolind.2020.107110
5. Wagner, P.D., Bhallamudi, S.M., Narasimhan, B., Kumar, S., Fohrer, N., Fiener, P. Comparing the effects of dynamic versus static representations of land use change in hydrologic impact assessments. (2019) Environmental Modelling and Software, 122, art. no. 103987, . DOI: 10.1016/j.envsoft.2017.06.023
6. Ayana, E. K., Y. T. Dile, B. Narasimhan, and R. Srinivasan. 2019. "Dividends in Flow Prediction Improvement using High-Resolution Soil Database." Journal of Hydrology: Regional Studies 21: 159-175. doi:10.1016/j.ejrh.2019.01.003.
7. Ghosh, S., Karmakar, S., Saha, A., Mohanty, M.P., Ali, S., Raju, S.K., Krishnakumar, V., Sebastian, M., Behera, M.R., Ashrit, R., Murty, P.L.N., Srinivas, K., Narasimhan, B., Usha, T., Ramana Murthy, M.V., Thiruvengadam, P., Indu, J., Thirumalaivasan, D., George, J.P., Gedam, S., Inamdar, A.B., Murty, B.S., Mujumdar, P.P., Mohapatra, M., Bhardwaj, A., Basu, S. & Nayak, S. 2019, "Development of India's first integrated expert urban flood forecasting system for Chennai", Current science, vol. 117, no. 5, pp. 741-745.
8. Sudheer, K. P., S. Murty Bhallamudi, B. Narasimhan, J. Thomas, V. M. Bindhu, V. Vema, and C. Kurian. 2019. "Role of Dams on the Floods of August 2018 in Periyar River Basin, Kerala." Current Science 116 (5): 780-794. doi:10.18520/cs/v116/i5/780-794.

9. Wagner, P. D., S. M. Bhallamudi, B. Narasimhan, S. Kumar, N. Fohrer, and P. Fiener. 2019. "Comparing the Effects of Dynamic Versus Static Representations of Land use Change in Hydrologic Impact Assessments." *Environmental Modelling and Software* 122. doi:10.1016/j.envsoft.2017.06.023.
10. P.S. Smitha, B. Narasimhan, K.P. Sudheer, and H. Annamalai. 2018. An improved bias correction method of daily rainfall data using a sliding window technique for climate change impact assessment. *Journal of Hydrology*, Volume 556, 2018, Pages 100-118, ISSN 0022-1694, <https://doi.org/10.1016/j.jhydrol.2017.11.010>
11. Suresh Kumar Thappeta, S. Murty Bhallamudi, Peter Fiener, and Balaji Narasimhan. 2017. "Resistance in Steep Open Channels due to Randomly Distributed Macro Roughness Elements at Large Froude Numbers, accepted for publication, *Journal of Hydrologic Engineering*, ASCE. 22(12). [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001587](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001587)
12. Paul Wagner, S. Murty Bhallamudi, Balaji Narasimhan, Shamita Kumar, Nicola Fohrer, and Peter Fiener. 2017. "Comparing the effects of dynamic versus static representations of land use change in hydrologic impact assessments", *Environmental Modeling and Software*, Elsevier. <https://doi.org/10.1016/j.envsoft.2017.06.023>
13. Narasimhan, B., P. M. Allen, S. V. Capello, J. G. Arnold and R. Srinivasan. 2017. Development and testing of a physically based stream bank erosion model for coupling with a basin scale hydrologic model SWAT. *Journal of the American Water Resources Association (JAWRA)* 53(2): 344-364.
14. Wagner, P. D., S. Murty Bhallamudi, B. Narasimhan, L. N. Kantakumar, K. P. Sudheer, S. Kumar, K. Schneider, P. Fiener, 2016. Dynamic integration of land use changes in a hydrologic assessment of a rapidly developing Indian catchment. *Science of the Total Environment*, Vol. 539: 153-164.
15. Lee, T., Wang, X., White, M., Tuppad, P., Srinivasan, R., Narasimhan, and Andrews, D. 2015. Modeling Water-Quality Loads to the Reservoirs of the Upper Trinity River Basin, Texas, USA. *Water*, 7(10), 5689-5704.
16. Ziadat F M, Dhanesh Y, Shoemate D, Srinivasan R, Narasimhan B, Tech J. 2015. Soil-Landscape Estimation and Evaluation Program (SLEEP) to predict spatial distribution of soil attributes for environmental modeling. *Int J Agric & Biol Eng*, 8(3): 158–172.
17. Bindhu, V. M, and Narasimhan, B. 2015. Development of a spatio-temporal disaggregation method (DisNDVI) for generating a time series of fine resolution NDVI images. *ISPRS Journal of Photogrammetry and Remote Sensing* 101: 57-68.
18. Bindhu, V. M, Narasimhan, B, and Sudheer, K. P. 2013. Development and verification of a non-linear disaggregation method (NL-DisTrad) that downscale MODIS land surface temperatures to the spatial scale of Landsat thermal data to estimate evapotranspiration. *Remote Sensing of the Environment* 135: 118-129.
19. Mohanasundaram, S., G. Suresh Kumar and Narasimhan, B. 2013. Numerical modelling of fluid flow through unsaturated zone using a dual-porosity approach. *ISH Journal of Hydraulic Engineering* 19(2): 97-110.
20. Wang, X., White, M., Tuppad, P., Lee, T., Srinivasan, R., Zhai, T., Andrews, D., Narasimhan, B. 2013. Simulating sediment loading into the major reservoirs in Trinity River Basin. *Journal of Soil and Water Conservation* 68(5): 372 – 383.
21. Kaushal K. Garg, L. Bharati, A. Gaur, B. George, S. Acharya, K. Jella, and B. Narasimhan. 2012. Spatial Mapping of Agricultural Water Productivity using SWAT model in Upper Bhima Catchment, India. *Irrigation and Drainage*, 61(1): 60-79.
22. Narasimhan, B, R. Srinivasan, S. Bednarz, M. Ernst, and P. M. Allen. 2010. A Comprehensive Modelling approach for reservoir water quality assessment and management due to point and non-point source pollution. *Transactions of the ASABE* 53(5): 1605 – 1617.

23. Lee, T., M. E. Rister, B. Narasimhan, R. Srinivasan, D. Andrew, and M. R. Ernst. 2010. Evaluation and spatially distributed analyses of proposed cost-effective BMPs for reducing phosphorous level in cedar creek reservoir, Texas. *Transactions of the ASABE* 53(5): 1619 – 1627.
24. Stratton, B. T., V. Sridhar, M. M. Gribb, J. P. McNamara and B. Narasimhan. 2009. Modelling the spatially varying water balance processes in a semiarid mountainous watershed of Idaho. *Journal of the American Water Resources Association* 45(6):1390-1408.
25. Workneh, F., T. W. Allen, G. H. Nash, B. Narasimhan, R. Srinivasan, and C.M. Rush. 2008. Rainfall and temperature distinguish between Karnal bunt positive and negative years in wheat fields in Texas. *Phytopathology* 98(1):95-100.
26. Workneh, F., B. Narasimhan, R. Srinivasan, and C.M. Rush. 2006. Assessment of regional site-specific sorghum ergot severity potential using radar-rainfall measurement. *Plant Disease* 90 (6): 704-707.
27. Narasimhan, B., and R. Srinivasan. 2005. Development and evaluation of soil moisture deficit index (SMDI) and evapotranspiration deficit Index (ETDI). *Agricultural and Forest Meteorology* 133:69-88.
28. Narasimhan, B., R. Srinivasan, J. G. Arnold, and M. Di Luzio. 2005. Simulation of long-term soil moisture using a distributed parameter hydrologic model. *Transactions of the ASABE* 48(3):1101-1113.
29. Ramanarayanan, T. S., B. Narasimhan, and R. Srinivasan. 2005. Characterization of Fate and Transport of a Soil Applied Corn Herbicide in Surface Water. *Journal of Agricultural and Food Chemistry* 53(22):8848-8858.
30. Workneh, F., B. Narasimhan, R. Srinivasan, and C.M. Rush. 2005. Potential of radar estimated rainfall for plant disease risk forecast. *Phytopathology*. 95(1):25-27.
31. Narasimhan, B., R. Srinivasan, and A. D. Whittaker. 2003. Estimation of Potential Evapotranspiration from NOAA-AVHRR Satellite. *Applied Engineering in Agriculture* 19(3): 309-318.
32. Chen, P. Y., R. Srinivasan, G. Fedosejevs, and B. Narasimhan. 2002. An Automated Cloud Detection Method for Daily NOAA-14 AVHRR Data for Texas, U.S.A. *International Journal of Remote Sensing* 23(15): 2939-2950.
33. Narasimhan, B. and Sri Ranjan, R. 2000. Electrokinetic Barrier to Prevent Subsurface Contaminant Migration: Theoretical Model Development and Validation. *Journal of Contaminant Hydrology* 42(1):1-17.

Refereed non-scopus Cited Journal Publications

34. Mohanasundaram. S., Balaji Narasimhan., and G. Suresh Kumar. (2013). "The Significance of Autocorrelation and Partial Autocorrelation on Univariate Groundwater Level Rise (Recharge) Time Series Modeling". *Journal of Groundwater Research* (ISSN: 2321 – 4783), vol. 2(1), pp. 131-142.
35. D Sravani, B Narasimhan, 2013, "Flood Inundation Mapping of Thamiraparani River Basin Using HEC-GeoRAS and SWAT", *International Journal of Engineering Research and Technology* (ISSN: 2278-0181; ISO 3297:2007), 2(7): 1408-1420.

Papers under review

1. Bindhu, V. M, and Narasimhan, B. (2014 Under Review). Development of a spatio-temporal disaggregation method (DisNDVI) for generating a time series of fine resolution NDVI images. *IEEE Transactions on Geosciences and Remote Sensing*
2. Bindhu, V. M, and Narasimhan, B. (2014 Under Review). Development of an energy balance formalism (SMARET – Satellite Mapping of Actual cRop ET) to estimate evapotranspiration at fine spatial and temporal resolution. *Journal of Hydrology*.

3. Bindhu, V. M, and Narasimhan, B. (2014 Under Review). Development of a novel technique to map field application efficiency of a large irrigation command using energy balance and crop growth models. *Journal of Hydrology*.

Papers under preparation

1. Narasimhan, B., and R. Srinivasan. Can spatially distributed NEXRAD rainfall estimate reduce parameter uncertainty in water quality modeling?. *Journal of Hydrology*.
2. Narasimhan, B., P. K. Maghelal, B. Palanisamy, and R. Srinivasan. Accuracy assessment of NEXRAD radar rainfall data over Texas. *Journal of Hydrology*.
3. Narasimhan, B., and R. Srinivasan. Verification of the in-stream water quality model QUAL-2E integration with Soil and Water Assessment Tool (SWAT). *Transactions of the ASAE*.

International Conferences Papers

1. J. Naveen, P. Pooja and B. Narasimhan. 2013. Estimation Of In Stream Flow Requirements Of Son River In Ganga Basin. HYDRO 2013 International, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering December 04-06, 2013, Department of Ocean Engineering, IIT Madras, India.
2. P. Pooja, J. Naveen and B. Narasimhan. 2013. Assessment Of Climate Change Impacts On The Surface Water And Ground Water Potentials Of Chennai River Basin. HYDRO 2013 International, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering December 04-06, 2013, Department of Ocean Engineering, IIT Madras, India.
3. N. Nithila Devi, K. Sangeetha, K.P.Sudheer and B.Narasimhan. 2013. Study On The Effect Of Different Objective Functions For Calibration Of A Simple Conceptual Rainfall Runoff Model. HYDRO 2013 International, 18th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering December 04-06, 2013, Department of Ocean Engineering, IIT Madras, India.
4. S. Mohanasundaram, G. Suresh Kumar, B. Narasimhan. 2013. Transfer Function Noise Modeling of Dynaic Groundwater Level Fluctuation Using Deseasonalized Rainfall Series. AGU Fall meeting, San Francisco, 9 – 13, 2013.
5. Bindhu, V. M. and B. Narasimhan. 2010. Intercomparison of latent heat flux estimates based on energy balance models. Proceedings of 9th International Conference on Hydro-Science and Engineering (ICHE 2010), IIT Madras, Chennai, INDIA. 2- 5 August 2010.
6. Bindhu, V. M. and B. Narasimhan. 2010. Sensitivity analysis of surface energy fluxes estimated by SEBAL. ASCE – EWRI's 3rd International Perspective on Current & Future State of Water Resources & the Environment. IIT Madras, INDIA. 5 – 7 January 2010.
7. Leidner, A.J., Rister, M.E., Sturdivant, A.W., Lee, T., Waidler, D., Seawright, E.K., Lacewell, R.D., Srinivasan, R., Narasimhan, B., Wolfe, C., Andrews, D., Ernst, M., Owens, J., Lesikar, B., Adams, R.F., Berthold, A., Jones, C.A., Harris, B.L.. 2010. Consideration of economics while identifying best management practices for watershed protection plans. ASABE - TMDL 2010: Watershed Management to Improve Water Quality, pp. 349-357
8. Allen, P.M., B. Narasimhan, J. Dunbar, S. Prochnow, S. Capello, and R. Srinivasan. 2007. Rapid Geomorphic Assessment of Watershed Sediment Budgets for Water Supply Reservoirs Using SWAT and Sub-Bottom Acoustical Profiling. 4th International SWAT conference, July 4-6, 2007, UNESCO-IHE, Delft.
9. Narasimhan, B., P.M. Allen, R. Srinivasan, S. Bednarz, J. G. Arnold, J. Dunbar, and. 2007. Streambank Erosion and Best Management Practice Simulation using SWAT. Pp 190-197 in Watershed Management to Meet Water Quality Standards and TMDLS (Total Maximum Daily Load) (10-14 March 2007, San Antonio, Texas, USA) eds, A. McFarland, A. Saleh. St. Joseph, Michigan: ASABE. ,10 March 2007 . ASAE Pub #701P0207

10. Allen, P.M., J. Dunbar, S. Prochnow, L. Zygo, B. Narasimhan, R. Srinivasan. 2006. Assessment of Erosion Volumes for Model Calibration in Large Watersheds. The Texas River and Reservoir Management Society Conference, University of Texas, Austin, Texas.
11. Narasimhan, B., and R. Srinivasan. 2003. Developing an Agricultural Drought Assessment System Using Hydrologic Model SWAT and GIS. ASAE meeting Paper No. 032118. St. Joseph, Mich.: ASAE.
12. Srinivasan, R., and Narasimhan, B. 2001. Estimation of Drought Index (KBDI) in Real-Time Using GIS and Remote Sensing Technologies. ASAE meeting Paper No. 013054. St. Joseph, Mich.: ASAE.
13. Narasimhan, B., and R. Sri Ranjan. 1999. Creation of a Subsurface Barrier to Contaminant Transport Using Electrical Potential Gradients. Paper No.99-2124. ASAE, 2950 Niles Rd., St. Joseph, MI 49085-9659.USA.
14. Narasimhan, B., and R. Sri Ranjan. 1998. Modelling the electrokinetic phenomena in soils. Paper No.Sd98-119.ASAE, 2950 Niles Rd., St. Joseph, MI 49085-9659.USA.

National Conferences Papers

1. Srinivasan, K., and B. Narasimhan. 2011. Role of Academia in Water Partnerships. "Confluence of Ideas and Organizations" published during International Conference on "Water Partnerships towards Meeting the Climate Challenge", Chennai, INDIA. Jan.6 and 7, 2011.
2. Bindhu, V. M. and B. Narasimhan. 2009. Sensitivity analysis of latent heat flux estimates to the selection of anchor pixels using SEBAL. Indian Society of Remote Sensing (ISRS) symposium, Sep.17-19, 2009, Nagpur, INDIA.

Conference with only extended abstracts

1. Smitha, P.S., B. Narasimhan and K. P. Sudheer. 2017. Multi model ensemble for assessing the impact of climate change on the hydrology of a south Indian river basin. Presented at the 2017 International SWAT conference at Warsaw, Poland. 26-30 July 2017.
2. Sangeetha, K, and B. Narasimhan. 2017. Analytic element method (AEM) and its relevance with subbasin / HRU concept of SWAT for potential integration of AEM based simple ground water model. Presented at the 2017 International SWAT conference at Warsaw, Poland. 26-30 July 2017.
3. Narasimhan, B., and R. Srinivasan. 2014. A study on the effect of improved spatial and temporal distribution of rainfall estimates on hydrologic model parameter uncertainty. 2014 International Weather Radar and Hydrology Symposium (WRaH2014), April 7-10, 2014 in Reston, Virginia, USA.
4. Bindhu, V. M., and B. Narasimhan. 2014. An integrated remote sensing based energy balance and crop growth modeling approach to estimate irrigation water distribution and field application efficiency across a command area. International Symposium on Evapotranspiration: Challenges in Measurement and Modeling from Leaf to the Landscape Scale and Beyond, April 7-10, 2014 – Raleigh, North Carolina.
5. Narasimhan, B., Naveen, J., P. Pooja, J. G. Arnold and R. Srinivasan. 2013. Integration of a pseudo 3D finite element ground water model with SWAT. Presented at the 2013 International SWAT conference at Toulouse, France. 17-20 July 2013.
6. Narasimhan, B. 2013. Some modifications to the simulation of irrigation practices in Paddy using SWAT. Presented at the 2013 International SWAT conference at Toulouse, France. 17-20 July 2013.
7. Narasimhan, B., K. Sangeetha, Y. Dhanesh and B. S. Murty. 2012. Development of soil and landuse map for hydrological modeling purposes using SWAT. Presented at the 2012 International SWAT conference at New Delhi. 18-20 July 2012.

8. Dhanesh, Y., K. Sangeetha, B. Narasimhan and B. S. Murty. 2012. Hydrological modeling of Son and Ton river basin using SWAT. Presented at the 2012 International SWAT conference at New Delhi. 18-20 July 2012.
9. Jella, K., B. Narasimhan, K. Palanisami, K. R. Kakumanu. 2012. Crop production in a changing climate of Krishna Basin. Presented at the 2012 International SWAT conference at New Delhi. 18-20 July 2012.
10. Manivasagam, V. S., B. Narasimhan, V. Geethalakshmi, K. Bhuvaneshwari. 2012. Hydrological modeling of Cauvery river basin to assess the sustainability of irrigated agriculture due to climate change. Presented at the 2012 International SWAT conference at New Delhi. 18-20 July 2012.
11. Narasimhan, B., P. M. Allen, S. Capello, D. Coffman, J. G. Arnold and R. Srinivasan. 2011. Development and testing of improved physically based streambank erosion and sediment routing routines in SWAT. Presented in the 2011 International SWAT Conference, Toledo, SPAIN, June 15-17, 2011.
12. Narasimhan, B., R. Srinivasan, S. Bednarz, and M. Ernst. 2009. Hydrologic modelling of Cedar Creek Reservoir using SWAT. 5th International SWAT conference, Aug.5-7, 2009, University of Colorado, Boulder, COLORADO.
13. Narasimhan, B., P.M. Allen, M. Ernst, J. Dunbar, S. Bednarz, J. G. Arnold and R. Srinivasan. 2009. Channel erosion and water quality modelling using SWAT. 5th International SWAT conference, Aug.5-7, 2009, University of Colorado, Boulder, COLORADO.
14. Narasimhan, B., P.M. Allen, J. G. Arnold and R. Srinivasan. 2009. Improved physically based approaches for channel erosion modelling in SWAT. 5th International SWAT conference, Aug.5-7, 2009, University of Colorado, Boulder, COLORADO.
15. Narasimhan, B., and R. Srinivasan. 2007. Standardized Streamflow and Reservoir Indices for monitoring hydrologic and water supply drought. ASAE meeting Paper No. 072164. St. Joseph, Mich.: ASAE.
16. Narasimhan, B., R. Srinivasan, S. Bednarz, and M. Ernst. 2006. Non-point source pollution assessment of Cedar Creek watershed using a three-tiered modeling approach. ASAE meeting Paper No. 062116. St. Joseph, Mich.: ASAE.
17. Narasimhan, B., and R. Srinivasan. 2006. Development of a spatially enhanced drought index using GIS and hydrologic models. American Water Resources Association Spring Specialty Conference: "Geographic Information System (GIS) and Water Resources IV". May 8-10, 2006. Houston, Texas.
18. Narasimhan, B., and R. Srinivasan. 2006. Texas Weather Connection: An interactive web portal of high resolution weather data. American Water Resources Association Spring Specialty Conference: "Geographic Information System (GIS) and Water Resources IV". May 8-10, 2006. Houston, Texas.
19. Narasimhan, B., R. Srinivasan, S. Bednarz, and M. Ernst. 2005. Non-point source pollution assessment of Cedar Creek watershed using a three-tiered modeling approach. The Texas River and Reservoir Management Society Conference, Baylor University, Waco, Texas.
20. Narasimhan, B., and R. Srinivasan. 2005. Agricultural Drought Index. Texas Drought Workshop. Texas Water Development Board, Austin, Texas.
21. Narasimhan, B., and R. Srinivasan. 2005. Can spatially distributed NEXRAD rainfall estimate reduce parameter uncertainty in water quality modeling?. ASAE meeting Paper No. 052009. St. Joseph, Mich.: ASAE.
22. Narasimhan, B., and R. Srinivasan. 2002. Development of a Soil Moisture Index for Agricultural Drought Monitoring Using a Hydrologic Model (SWAT), GIS and Remote Sensing. Texas Water Monitoring Congress. September 9-11, 2002. Austin, TX.

Book Chapters

1. Narasimhan, B., Pei-yu Chen, J. H. Jacobs, and R. Srinivasan. 2006. Real-Time Modeling of Natural Resources Using the Spatial Sciences. In Modeling and Remote Sensing Applied to Agriculture (U.S. and Mexico). USDA-ARS and INIFAP. 51-69.

Reports/ Dissertation/Thesis

1. Bhuvaneshwari, K., B. Narasimhan, V. S. Manivasagam, V. Geethalakshmi and A. Lakshmanan. 2013. Hydrological assessment of sustaining Rice Production in a changing climate: Cauvery Basin. Report submitted to Bioforsk Norway.
2. Jella, K., B. Narasimhan, K. Palanisami and K. R. Kakumanu. 2013. Hydrological assessment of sustaining Rice Production in a changing climate: Krishna Basin. Report submitted to Bioforsk Norway.
3. Murty, B. S., Sudheer, K. P., Narasimhan, B., Jayakumar, K. V. 2011. Study for modernising Thanneermukkom Bund and Thottapalli for Spillway for Efficient Water Management in Kutanadu Region, Kerala. IIT Madras.
4. Murty, B. S., Narasimhan, B. and Sudheer, K. P. 2010. Mathematical Model Studies for construction of High Level Bridge over River Koshi near Sahasra in the Bihar State. IIT Madras.
5. Stuke, J., B. Narasimhan, and R.Srinivasan. 2008. Galveston and Lavaca Watershed Multi-year Land Use and Land Cover Classifications and Curve Numbers. Texas Water Development Board.
6. Narasimhan, B., Taesoo Lee, and R.Srinivasan. 2008. Cedar Creek Watershed: Best Management Practice Development and Simulation Using SWAT. Tarrant Regional Water District.
7. Quiring, S., B. Narasimhan, J. W. Nielsen-Gammon, R. Srinivasan, and T. Miller. 2007. Drought Monitoring Index for Texas. Texas Water Development Board.
8. Narasimhan, B., R. Srinivasan, S. Quiring, and J. W. Nielsen-Gammon. 2007. Digital Climatic Atlas of Texas. Texas Water Development Board.
9. Narasimhan, B., S.T. Bednarz, and R.Srinivasan. 2007. Cedar Creek Watershed: SWAT model development, calibration and validation. Tarrant Regional Water District.
10. Ramanarayanan, T. S., B. Narasimhan, and R. Srinivasan. 2004. Fate and Transport of Isoxaflutole in Watersheds and Semi-Static Water Bodies: Conceptual Model and Deterministic Watershed Modeling. Bayer CropScience. Rep. No. B004676.
11. Allen, R., P. Cain, P. Freesman, I. Hardy, R. Jones, I. Kelly, R. Lee, B. Narasimhan, T. S. Ramanarayanan, G. Sabbagh, L. Somerville, and R. Srinivasan. 2004. The Environmental Fate of Isoxaflutole Following Use on Corn in the U. S. EPA MRID Number: 46330201.
12. Narasimhan, B. 2004. Development of Indices for Agricultural Drought Monitoring Using a Spatially Distributed Hydrologic Model. PhD Dissertation. Texas A&M University, College Station. 187p.
13. Narasimhan, B. 1999. Electrokinetic Barriers to Contaminant Transport: Numerical Modelling and Laboratory-Scale Experimentation. M.Sc Thesis. University of Manitoba, Winnipeg, Canada. 118p.

Invited Talks

1. January 20, 2017. Chennai Floods – 2015 – Engineering Perspective. Workshop on Urban Flood Mitigation : An approach from vulnerability to resilience – A case of Chennai city. Organized by MCCI jointly with TARU & NIUA, New Delhi.
2. October 8, 2016. CHENNAI FLOODS-2015: Engineering Perspective. Chennai Water Forum, October 6 – 8, 2016 at Kalakshetra Foundation. Organized by Goethe Institute, Chennai.
3. October 3, 2016. Soil and Water Assessment Tool (SWAT) for Climate Change Impact Assessment on Water Resources. Workshop organized for experts from ASEAN countries, as part of "Oxford 1.5 Deg Conference".

4. July 7, 2016. Urban Flood Risk Management - Chennai Floods 2015 and lessons for Amaravati. 45 Day Induction Training Programme for new entrants of CRDA (Capital Region Development Authority) of Andhra Pradesh. Campus of Extension Training Centre (ETC), Bapatla, Guntur District.
5. July 7, 2016. Salient Features of a Flood Resilient City - A vision for Amaravati. 45 Day Induction Training Programme for new entrants of CRDA (Capital Region Development Authority) of Andhra Pradesh. Campus of Extension Training Centre (ETC), Bapatla, Guntur District.
6. June 30, 2016. Inputs to Study Team for Urban Flooding (STUF). Indian National Academy of Engineers, New Delhi.
7. February 1, 2016. Storm water drainage of Chennai- Lacuna, Assets, and Way Forward. Resilient Chennai: Summit on Urban Flooding. Greater Chennai City Corporation, Chennai.
8. May 19-21, 2014. Emerging water resources modeling technologies to understand climate change impacts on various sectors and to develop adaptation strategies. 2014 Indo-American Frontiers of Engineering Symposium, Mysore, India
9. December 12, 2012. GIS for Water Resources Management. Lecture delivered as part of the "Two day National level workshop on Energy, Environment and Sustainable Development" organized at the Department of Civil Engineering at Sri Krishna College of Technology, Coimbatore.
10. October 19, 2012. SWAT as a tool for assessing the climate change impacts on the hydrology: Scientific and Technical Issues. Lecture delivered at the "Brain Storming Session on "Down-scaling and Impact Assessment for River Basin Scale Studies" organized by the Indian National Committee on Climate Change (INCCC) at New Delhi.
11. September 4, 2012. Thermal Remote Sensing for assessing irrigation water use efficiency. Lecture delivered as part of the "Summer Training Programme on Geospatial Technologies and Applications under NRDMS Programme sponsored by the DST" organized by the Department of GIS and Remote sensing, Tamil Nadu Agricultural University, Coimbatore.
12. September 4, 2012. Topographic analysis using GIS for watershed delineation. Lecture delivered as part of the "Summer Training Programme on Geospatial Technologies and Applications under NRDMS Programme sponsored by the DST" organized by the Department of GIS and Remote sensing, Tamil Nadu Agricultural University, Coimbatore.
13. March 3, 2012. Introduction to GIS and Remote Sensing. Lecture delivered at the Department of Civil Engineering, Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Chennai.
14. January 20, 2011. Vector data model and geo-spatial analysis. Lecture delivered as part of the training programme on "GIS applications in Engineering" at the Department of Civil Engineering, Govt. College of Engineering, Thrissur.
15. January 5, 2011. Crop-Water use estimation from thermal remote sensing data. Lecture delivered as part of the training programme on "Irrigation Scheduling and Crop-Water Requirement computation" at Centre for Water Resources, Anna University, Chennai.
16. October 19, 2010. Overview of Soil and Water Assessment Tool. Lecture delivered at the Dept. of Civil Engineering, IIT Kanpur.
17. November 17-19, 2005. Use of water quality models. Watershed Management Training Conference, Ft.Worth, Texas, Texas Cooperative Extension and Texas Water Resources Institute.
18. May 6, 2004. Development of Indices for Agricultural Drought Monitoring Using a Spatially Distributed Hydrologic Model. Blackland research and Extension Center, Texas Agricultural Experiment Station.
19. February 11-12, 2003, Texas Drought Information Network. Texas Drought Symposium organized by Texas Water Development Board, San Angelo Research and Extension Center.
20. January 30, 2002. Regional drought assessment tools for Texas using GIS and remote sensing, Texas Water Resources Institute.

21. October 22, 2001. Developing Wildland Fire Risk Index for Texas Using Remote Sensing. Presented at the annual meeting of Texas Forest Service, Texas A&M University.
22. April 11, 2001. Hydrological Applications of Land Surface Temperature Derived from AVHRR. Blackland research and Extension Center, Texas Agricultural Experiment Station.

Advanced Training/Workshops Conducted

1. February 13 to 18, 2017. Introduction to two-dimensional flow modelling using GIS. AICTE QIP short-term training program. IIT Madras.
2. 28 November to 9 December 2016. Hydroinformatics for Integrated Water Resources Management. Global Initiative of Academic Network (GIAN) Programme. IIT Madras
3. Jan.4-Jan. 9, 2016. QIP-STTP "Introduction to Soil and Water Assessment Tool (SWAT) using Open source Tools: QGIS & QSWAT". IIT Madras.
4. October 20 to October 22, 2015. Introductory SWAT workshop. International SWAT-Asia Conference IV (SWAT Asia IV), 19 to 23 October 2015, Tsukuba, Japan.
5. June 29 to July 1, 2015. Hydrologic Modelling using QSWAT at JNTU Hyderabad.
6. Dec 26-27, 2014. Introduction to QSWAT at IIT Hyderabad. Primary Speaker and tutor for 2-days and hand's on session.
7. Dec.26, 2014 to Dec.27, 2014. Introduction to QSWAT. IIT Hyderabad, INDIA.
8. Dec.30, 2013 to Jan.3, 2014. Introductory and Advanced SWAT workshops. Along with Dr. R. Srinivasan from Texas A&M University. Dept. of Civil Engineering, IIT Madras, INDIA.
9. Dec 20-22, 2012. Climate Change Impact Assessment on Water Resources using Soil and Water Assessment Tool. Along with Dr. R. Srinivasan from Texas A&M University. Dept. of Civil Engineering, IIT Madras, INDIA.
10. July 16-17, 2012. Introductory SWAT workshop. Along with Dr. R. Srinivasan from Texas A&M University. During the 2012 International SWAT conference at IIT Delhi.
11. Sep 16-18, 2011. Advanced SWAT workshop. Along with Dr. R. Srinivasan from Texas A&M University. Agro Climate Research Centre, Tamil Nadu Agricultural University, Coimbatore, INDIA.
12. May 4-6, 2011. Introductory GIS workshop. Agro Climate Research Centre, Tamil Nadu Agricultural University, Coimbatore, INDIA.
13. Jan. 31 - Feb.5, 2011. QIP short-term course on "GIS and Remote Sensing Techniques for Water Resources Assessment (Using Open Source Tools)". Along with Dr. K. P. Sudheer, Dept. of Civil Engineering, IIT Madras, INDIA.
14. Dec. 1-3, 2010. Introductory SWAT workshop. Along with Dr. R. Srinivasan from Texas A&M University. IIT Madras, INDIA.
15. December 18, 2009. Overview of Soil and Water Assessment Tool (SWAT) with particular reference to Climate Change prediction on water resources in India. A one-day workshop conducted for the senior officers of Central Water Commission at New Delhi, INDIA.
16. Dec. 22-24, 2008. Introduction to Soil and Water Assessment Tool. Along with Dr. R. Srinivasan from Texas A&M University. Tamil Nadu Agricultural University, Coimbatore, INDIA.
17. April 3-5, 2007. Introductory Remote Sensing Workshop. Spatial Sciences Laboratory, Texas A&M University, College Station, USA.
18. August 22-24, 2006. Introductory Remote Sensing Workshop. Spatial Sciences Laboratory, Texas A&M University, College Station, USA.

Scientific Memberships

1. Association of Global Ground Water Scientists, Since 2015
2. International Association of Hydro-Environment Engineering and Research, Since 2011
3. Indian Society of Remote Sensing, since 2008
4. Indian Association of the Soil and Water Conservationists, since 2008
5. Indian Association of the Hydrologists, since 2008
6. American Society of Agricultural Engineers (ASAE), since 1997
7. American Geophysical Union (AGU), since 1998