







My Research Group

(updated in September 2022)

Research Associates (Post Doctoral Fellows)

1	<p><u>Dr. Sreedevi. S</u> (March, 2022 – present)</p> <p>Research Area: Watershed Hydrology, Hydro-climatology, Hydrologic modelling Funded by: DST (Project: Hindon Roots Sensing, HIROS) Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
2	<p><u>Dr. Ruchi Bala</u> (Jan, 2022 – present)</p> <p>Research Area: Thermal pattern analysis in urban areas using optical and thermal remote sensing. Funded by: SERB, DST, Govt. of India Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
3	<p><u>Dr. M. Sakthi Asvini</u> (Sept, 2021 – present)</p> <p>Research Area: Estimation of Reservoir Sedimentation using Microwave remote sensing Funded by: UGC - Dr. D. S. Kothari post doctoral fellowship, Govt. of India Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
4	<p><u>Dr. Tabasum Rasool</u> (Jun, 2021 – May, 2022)</p> <p>Research Area: GIS, climate change, hydrological modelling, vadose zone modelling, groundwater modelling and integrated water resources management and extreme weather events Funded by: SERB, DST, Govt. of India Current Address: Interdisciplinary Centre for Water Research, Indian Institute of Science, Bengaluru – 560 012, India * jointly with Dr Rajarshi Das Bhowmik</p>	
5	<p><u>Dr. Subir Paul</u> (Aug, 2020 – Jan, 2022)</p> <p>Research Area: Remote Sensing and Machine Learning for Agricultural and Hydrological Applications Funded by: Ministry of Earth Sciences, Govt. of India Current Address: Data Scientist, M/s Varaha Climate Ag Pvt. Ltd., Bengaluru, India</p>	
6	<p><u>Dr. Rajesh Kumar Sah</u> (Sept, 2019 – Sept, 2022)</p> <p>Research Area: Brahmaputra River system Funded by: CSIR Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	


7	<p><u>Dr. Karthikeyan Lanka</u> (Jan, 2018 – Jan, 2019) Research Area: Soil Moisture Retrievals using Passive Microwave Satellite Data Funded by: Indian Institute of Science Current Address: Assistant Professor, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p>	
8	<p><u>Dr. Shwetha H.R.</u> (Jan, 2017 – May, 2017) (Sep, 2018 – 2019) Research Area: Estimation of Daily Actual Evapotranspiration using Microwave and Optical Vegetation Indices for Clear and Cloudy Sky Conditions Funded by: Ministry of Earth Sciences, Govt. of India Current Address: Assistant Professor, Dept. of Water Resources and Ocean Engg., National Institute of Technology Karnataka, Surathkal</p>	
9	<p><u>Dr. J. Indu</u> (Jan, 2015 – Jun, 2015) Research Area: Hydrologic Modelling using Microwave Remote Sensing Funded by: Indian Institute of Science Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p>	
10	<p><u>Dr. Basudev Biswal</u> (Dec, 2011 – Jun, 2013) Research Area: Hydrograph Recession Curve Analysis Funded by: Indian Institute of Science Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p>	
11	<p><u>Dr. T. V. Reshmidevi</u> (Oct, 2009 – 2013) Research Area: Assessment of Climate Change Impacts on the Agricultural and Water Sectors Funded by: SERC Fast Track fellowship Scheme, Dept of Science and Technology, Government of India Current Address: Assistant Professor, Department of Civil Engineering, BMS College of Engineering, Bengaluru – 560 019, India</p>	
12	<p><u>Dr. C. T. Dhanya</u> (Aug, 2010 – Nov, 2011) Research Area: Hydroclimatological Modeling using Data Mining and Chaos Theory Funded by: Indian Institute of Science Current Address: Associate Dean (PG&R), Associate Professor, Department of Civil Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 110 016, India</p>	
13	<p><u>Dr. Aavudai Anandhi Swamy*</u> (May, 2008 – Dec, 2008) Research Area: Downscaling GCM Projections to River Basin Scale for Water Resources Assessment Funded by: Indian Institute of Science Current Address: Associate Professor, Biological Systems Engineering, Florida A&M University, USA * jointly with Prof. V.V. Srinivas</p>	
14	<p><u>Dr. M. Janga Reddy</u> (Feb, 2007 – Apr, 2007) Research Area: Hybrid Softcomputing Techniques for Streamflow Forecasting and Real-time Optimal Reservoir Operation Funded by: Indian Institute of Science Current Address: Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p>	

Research Scholars (PhD)


1	<p>Ms. Meera Mohan (Aug, 2021 - present) Research Area: Spatio-temporal Hydrologic Modelling using Physics-Guided Machine Learning Techniques Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India</p>	
2	<p>Ms. Shilpa K (Feb, 2021 - present) Research Area: Soil moisture studies using Microwave Remote Sensing Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India</p>	
3	<p>Ms. S.P. Vijayalakshmi (Feb, 2021 - present) Research Area: Soil erosion and sedimentation modelling Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India</p>	
4	<p>Mr. Kanishk Saxena* (Aug, 2019 - present) Research Area: Multi-reservoir Multi-objective Particle Swarm Optimization with Hedging Rules under Climate Change Conditions Current Address: Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru - 560012, India *joint guidance with Prof. S.K. Satheesh</p>	
5	<p>Ms. Suchismita Subhadarsini (Aug, 2019 - present) Research Area: Bayesian Modelling of the Land Use Land Cover Change and its interaction with compound extreme events Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India</p>	
6	<p>Mr. Ternikar Chirag Rajendra (Aug, 2018 – present) Research Area: Soil texture mapping using spectroscopy Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
7	<p>Ms. Ashlin Ann Alexander (Aug, 2017 – present) Research Area: Sensitivity analysis, Watershed hydrology, Process-based hydrologic modelling, HPC & Big data. Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	

8	<p>Ms. Saumya Srivastava (Aug, 2017 – present) Research Area: Development of multi-site multi-variate multi-temporal framework for hydrological modelling Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
9	<p>Ms. Elizabeth Baby George (Aug, 2016 – Sept, 2022) Research Area: Hyperspectral remote sensing for improving soil property estimation Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
10	<p>Dr. Subir Paul (Aug, 2015 – Aug, 2020) Thesis Title: Hyperspectral Remote Sensing for Land Cover Classification and Chlorophyll Content Estimation using Advanced Machine Learning Techniques Current Address: Data Scientist, M/s Varaha Climate Ag Pvt. Ltd., Bengaluru, India</p>	
11	<p>Dr. Chandan Banerjee (Aug, 2013 – Aug, 2018) Thesis Title: GRACE-based assessment of Climatic Controls on Hydrological variables Current Address: Swiss Re, Bengaluru, India</p>	
12	<p>Dr. Himanshu Bhagat* (Aug, 2013 – Mar, 2019) Thesis Title: Seasonal isotopic variability and major ion chemistry of Cauvery river basin, Peninsular India Current Address: Centre for Earth Sciences, Indian Institute of Science, Bengaluru – 560 012, India * joint guidance with Prof. Prosenjit Ghosh</p>	
13	<p>Dr. Karthikeyan Lanka (Aug, 2013 – Jan, 2018) Thesis Title: Soil Moisture Retrievals using Passive Microwave Satellite Data Current Address: Assistant Professor, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p>	
14	<p>Dr. Shwetha H.R. (Aug, 2011 – Jan, 2017) Thesis Title: Estimation of Daily Actual Evapotranspiration using Microwave and Optical Vegetation Indices for Clear and Cloudy Sky Conditions Current Address: Assistant Professor, Dept. of Water Resources and Ocean Engg., National Institute of Technology Karnataka, Surathkal</p>	
15	<p>Dr. Ganesh D Kale (Aug, 2012 – Dec, 2016) Thesis Title: Detection of Trends in Rainfall of Homogeneous Regions and Hydro-Climatic Variables of Tapi Basin with their Attribution Current Address: Assistant Professor, Dept of Civil Engg., SV National Institute of Technology, Surat, India</p>	





16	<p><u>Dr. J. Indu</u> (Aug, 2010 – Jan, 2015) Thesis Title: Uncertainty Analysis of Microwave Based Rainfall Estimates over a River Basin using TRMM Orbital Data Products Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India *Received Best Thesis Award</p>	
17	<p><u>Dr. Sonali Pattanayak</u> (Aug, 2009 – Dec, 2014) Thesis Title: A Hydroclimatological Change Detection and Attribution Study over India using CMIP5 Models Current Address: Lead Associate (Climate Quantified Analytics), Climate and Resilience Hub, Willis Towers Watson, Bengaluru, Karnataka, India</p>	
18	<p><u>Dr. Rutuja Chitra-Tarak</u> (Aug, 2008 – 2016) Thesis Title: Eco-Hydrology of a Seasonally Dry Tropical Forest - Tree Growth, Rooting Strategies and Drought-Vulnerability Current Address: Postdoctoral Research Associate at Los Alamos National Laboratory, Los Alamos, New Mexico, USA * joint guidance with Prof. R Sukumar</p>	
19	<p><u>Dr. C. T. Dhanya</u> (Aug, 2006 – Aug, 2010) Thesis Title: Hydroclimatological Modeling using Data Mining and Chaos Theory Current Address: Associate Dean (PG&R) Associate Professor, Department of Civil Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 110 016, India *Received Best Thesis Award</p>	
20	<p><u>Dr. Aavudai Anandhi Swamy</u> (Jan, 2003 – Dec, 2007) Thesis Title: Impact of Climate Change on Hydrometeorology of Indian River Basin for IPCC SRES Scenarios Current Address: Associate Professor, Biological Systems Engineering, Florida A&M University, USA * joint guidance with Prof. V.V. Srinivas</p>	
21	<p><u>Dr. Rajib Maity</u> (Aug, 2004 – Jan, 2007) Thesis Title: Impact of large-scale coupled Atmospheric-Oceanic circulation on hydrologic variability and uncertainty through hydroclimatic teleconnection Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Kharagpur, Kharagpur – 721 302, India</p>	
22	<p><u>Dr. M. Janga Reddy</u> (Aug, 2002 – Sept, 2006) Thesis Title: Swarm Intelligence and Evolutionary Computation for Single and Multiobjective Optimization in Water Resource Systems Current Address: Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p>	
23	<p><u>Dr. Falguni Baliarsingh</u> (Aug, 1997 – Jan, 2001) (in IIT Kharagpur) Thesis Title: Long-term and short-term optimal reservoir operation for flood control Current Address: Professor, Department of Civil Engineering, College of Engineering & Technology, Bhubaneswar - 751 003</p>	

24	<p><u>Dr. P. Anand Raj</u> (Aug, 1995 – Jul, 2000) (in IIT Kharagpur)</p> <p>Thesis Title: Multi criterion decision making in fuzzy environment for river basin development and management</p> <p>Current Address: Professor, Department of Civil Engineering, National Institute of Technology, Warangal-506 001</p> <p>* joint guidance with Prof. G.L.N. Sastry</p>	
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M.Sc. (Engg.)







1	<p><u>Dr. Karthikeyan Lanka</u> (Aug, 2011 – Jul, 2013)</p> <p>Thesis Title: Predictability of Nonstationary Time Series using Wavelet and Empirical Mode Decomposition based ARMA Models</p> <p>Current Address: Assistant Professor, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India</p> <p>*Received Best Thesis Award</p>	
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Project Associates

1	<p><u>Mohd Galib</u> (August, 2022 - present) Research Area: Remote Sensing and GIS, Machine Learning, Geospatial Data Analysis, Image Processing Funded by: DST (Project: Hindon Roots Sensing, HIROS) Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
2	<p>Amin Shakya (May, 2022 – present) Research Area: Hydroinformatics, geoinformatics, climate change, data assimilation Project Title: Improving the spatial resolution of GRACE TWS for India using remote sensing datasets and modeling approach Funded by: IISc-STC, IISc, Bangalore Current Address: Interdisciplinary Centre for Water Research, IISc. Bengaluru-560012, India. * Jointly with Dr. Bramha Dutt Vishwakarma</p>	
3	<p>Anu S Patil (Nov, 2021 – present) Research Area: Remote Sensing and GIS, climate change, hydrological modelling, integrated models, and extreme weather events. Project Title: Development and application of a stochastic rainfall generator (SRG) to account for unprecedented rainfall events. Funded by: SERB DST, Govt. of India Current Address: Interdisciplinary Centre for Water Research, IISc. Bengaluru-560012, India. * Jointly with Dr Rajarshi Das Bhowmik</p>	
4	<p>Ridhee Ghosh (April, 2021 – Sept, 2022) Research Area: Development of Bilinear and Non-Linear Unmixing Tool for Hyperspectral Image Analysis. Funded by: Space Applications Centre, ISRO. Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India.</p>	

ME/M. Tech. Students

1	<p>Mr. Roopesh Karabari Dhanaraj (2022-23) Dissertation Project Title: to be decided Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
2	<p>Mr. Teju Kumar N (2022-23) Dissertation Project Title: to be decided Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
3	<p>Mr. Chandan Kumar (2021-22) Dissertation Project Title: Flood Inundation Mapping and Floodwater Depth Estimation using FwDET model in Kosi River Basin, Bihar Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
4	<p>Mr. Nishant Kumar (2021-22) Dissertation Project Title: Spatio-temporal effects on Non-stationarity of Hydrologic Time Series and it's modelling Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India</p>	
5	<p>Ms. Meera Mohan (2020-21) Dissertation Project Title: Optimal Reservoir Operation Using Master-Slave Optimization Algorithm Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India</p>	
6	<p>Mr. Chandra Prakash Tamang (2019-20) Dissertation Project Title: Downscaling Precipitation using Deep Learning Techniques Current Address:</p>	
7	<p>Mr. Mridupawan Deka* (2018-19) Dissertation Project Title: Optimal Reservoir Operation using Water Cycle Algorithm Current Address: Research Scholar, Dept of Civil Engg., IIT, Guwahati * jointly with Dr Rajarshi Das Bhowmik</p>	
8	<p>Mr. Ramesh K Banagar (2017-18) Dissertation Project Title: Reliability assessment of stormwater drain network and evaluating performance of low impact developments in the watershed Current Address: Hydraulic Engineer Consultant, Xceedance, India</p>	
9	<p>Mr. Pranab Baruah (2016-17) Dissertation Project Title: Soil Type Classification and Mapping using Hyperspectral and Multispectral Remote Sensing Data Current Address: Assistant Professor (under TEQIP III program) at Department of Civil Engineering in B.C.E. Bhagalpur, Bihar – 813 210, India</p>	

10	<p>Mr. Santhosh Kumar R (2015-16) Dissertation Project Title: <i>Unsupervised Hyperspectral Vegetation Unmixing using Hyperion Data</i> Current Address: <i>Verisk Analytics India PVT. LTD., D.B.A. Air Worldwide, Hyderabad TS - 500081</i></p>	
11	<p>Mr. Anmol Jalali (2014-15) Dissertation Project Title: <i>Prioritization of Sub-catchments of Mahanadi Basin based on Geomorphology</i> Current Address:</p>	
12	<p>Dr. Subir Paul (2014-15) Dissertation Project Title: <i>Comparative Study of Actual Evapotranspiration Estimated from MSEBAL and TSEB Models by Utilizing Landsat 8 Data</i> Current Address: <i>Data Scientist, M/s Varaha Climate Ag Pvt. Ltd., Bengaluru, India</i></p>	
13	<p>Dr. Apoorva R Shastry (2012-13) Dissertation Project Title: <i>Delineation of Flood-prone Areas using Modified Topographic Index for Mahanadi Basin</i> Current Address: <i>Research Scientist, USRA, Columbus, Ohio, USA</i></p>	
14	<p>Dr. Chandan Banerjee (2012-13) Dissertation Project Title: <i>Hydrological Modeling of Malaprabha Catchment using TOP Model</i> Current Address: <i>Swiss Re, Bengaluru, India</i></p>	
15	<p>Dr. Swagat Patnaik (2012-13) Dissertation Project Title: <i>Analysis of Recession Flows</i> Current Address: <i>Senior Hydrologist, Statkraft, New Delhi, India</i></p>	
16	<p>Dr. Anjana Devanand (2011-12) Dissertation Project Title: <i>Statistical Analysis of Daily Rainfall over India using High Resolution IMD Gridded Data</i> Current Address: <i>Australia</i> * Gold Medallist</p>	
17	<p>Dr. Richa Ojha (2011-12) Dissertation Project Title: <i>Modelling Uncertainty in Variables of Different GCMs and Prediction of Extreme Events of Rainfall over India</i> Current Address: <i>Assistant Professor, Department of Civil Engineering, Indian Institute of Technology, Kanpur, India</i></p>	
18	<p>Mr. John Chunda Hansdak (2010-11) Dissertation Project Title: <i>Estimation of Actual Evapotranspiration over Malaprabha River Basin using Remote Sensing and SEBAL Model</i> Current Address:</p>	
19	<p>Mr. G. Sasidhar (2005-06) Dissertation Project Title: <i>Ant colony optimization for optimal design of water distribution systems</i> Current Address: <i>Working in a Software Company, Bangalore</i></p>	

20	<p><u>Dr. Rajib Maity</u> (2003-04) Dissertation Project Title: Hydrologic Time Series Analysis and Forecasting with Climatic Inputs Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Kharagpur, Kharagpur – 721 302, India * Gold Medallist</p>	
21	<p>Mr. K. Laxmi Raju (2002-03) Dissertation Project Title: Crop Classification using Multitemporal Imagery with Penalized Fuzzy C-Means Algorithm Current Address: IBM, Bangalore</p>	
22	<p>Mr. D. Ram Singh* (1999-2000) (in IIT Kharagpur) Dissertation Project Title: End Depth in Inverted Semi-circular Channels: Experimental and Theoretical Investigations Current Address: Software Company, Hyderabad * joint guidance with Prof. S. Dey</p>	
23	<p>Mr. D.S.V. Prasad (1998-99) (in IIT Kharagpur) Dissertation Project Title: Optimal Reservoir Operation in Fuzzy Environment Current Address: Group Leader, CMC Ltd, Pune</p>	
24	<p>Mr. Ashok Kumar (1998-99) (in IIT Kharagpur) Dissertation Project Title: Application of Genetic Algorithms for Optimal Reservoir Operation Current Address: Construction Company, Singapore</p>	
25	<p>Mr. T. Sathish (1997-98) (in IIT Kharagpur) Dissertation Project Title: River Flow Forecasting using Artificial Neural Networks Current Address: Software Company, Hyderabad</p>	
26	<p>Mr. K.C. Swain (1996-97) (in IIT Kharagpur) Dissertation Project Title: Application of Watershed Bounded Network Model for rainfall-runoff Modelling Current Address: Software Company, Bhubaneswar</p>	
27	<p><u>Dr. P.C. Nayak</u> (1995-96) (in IIT Kharagpur) Dissertation Project Title: Model Investigations of Stepped Spillway Current Address: Scientist, National Institute of Hydrology, Kakinada, A.P.</p>	
28	<p>Mr. T. Rama Mohana Rao (1994-95) (in IIT Kharagpur) Dissertation Project Title: Optimal Design of Water Distribution System using Linear Programming Gradient Method Current Address: Assistant Professor, Indian Institute of Management, Ahmedabad, India * joint guidance with Prof. M. Bandyopadhyay</p>	

Special Members

Sri D.V. Subrahmanyam

He is my father. Retired as Executive Engineer, Irrigation Dept, Govt of Andhra Pradesh in 1987. During his service to the Govt of AP, he was involved in Nagarjunasagar Dam (Tallest masonry dam in the World) construction, some of its canals alignment and reservoir operation. He is the motivating force for my research. He frequently goes through my work and makes valuable suggestions for improvement both in presentation and technical content.

Period: January 1994 to date

Current Address: We live together in IISc, Bangalore



Prof. K. Srinivasa Raju

Although Dr Raju has never worked with me for any formal degree, we have been working together on number of research topics from 1994. He fondly addresses himself as my PURS (Permanent Unbearable Research Scholar).

Period: Feb 1994 to date

Research Area: Multi Criteria Decision Making and Optimization in Water Resources Management, Climate Change impact on water resources

Current Address: Professor, Civil Engineering Department, Birla Institute of Technology and Science - Pilani, Hyderabad campus, Hyderabad - 500 078, Telangana



Others

Mr. Rajkumar V Raikar

worked with me for PhD for a short period until I left IIT, Kharagpur and submitted his thesis under the guidance of Prof. S Dey

Year: 2007

Research Area: Scour Studies near Channel Contractions

Current Address: Principal of an Engineering College, Karnataka

Mrs. Dipanjana Maulik

worked with me for PhD until I left IIT, Kharagpur and submitted her thesis under the guidance of Prof. D.J. Sen

Year: 2006

Research Area: Estuarine River Quality Modelling

Current Address: Chief Engineer, West Bengal Pollution Control Board, Kolkata