

PERSONAL INFORMATION

K. Balasubramani



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RESEARCH INTERESTS

My current research focus is on exploring applications of geospatial technologies in interdisciplinary fields, especially:

- Watershed modelling and sustainable land use planning
- Disaster risk assessments
- River basin dynamics and landscape evaluation
- Spatial mapping/modelling of environmental and health datasets

WORK EXPERIENCE

- 02/11/2022 - Present **Associate Professor** **Central University of Tamil Nadu, Thiruvarur (India)**
- Operating research projects, supervising doctoral students, teaching masters courses viz. Geomorphology, Applied geomorphology, Climatology, Hydrology, Disaster management, GIS, and Image analysis
- 02/08/2017 - 02/11/2022 **Assistant Professor** **Central University of Tamil Nadu, Thiruvarur (India)**
- Operated research projects, supervised doctoral students and taught masters courses, conducted field trips/workshops, coordinated students' progress and placement activities, IGS talent tests, GSI earth sciences olympiad, and the department newsletter (2020-21)
- 25/02/2011 - 01/08/2017 **Assistant Professor** **Bharathidasan University, Tiruchirappalli (India)**
- Taught GIS, Image processing, Earth systems science, Cartography, and Statistics related courses to M.Tech. Geoinformatics and M.Sc. Geosciences / Geography students, coordinated IIRS-ISRO outreach programmes, organised faculty development programmes/conferences and was involved in various academic/administrative committees
- 13/07/2009 - 24/02/2011 **Guest Lecturer** **Madurai Kamaraj University, Madurai (India)**
- Handled theory and practical classes for M.Sc. Geography and PG. Dip. in RS and GIS students
- 03/07/2006 - 10/07/2009 **Team Leader - 3D Mapping** **DSM Soft Pvt Ltd, Tiruchirappalli (India)**
- Process design and team management (earned professional team leader certificate), execution of 3D and ortho mapping projects using photogrammetry suite and lidar data classification and analysis for varied applications

EDUCATION AND SKILLS

- 07/2001–04/2004 **Bachelors in Geography** **73.9 % - First Class**
Govt Arts College, Bharathidasan University, Karur (India) **University First Rank**
- 07/2004–04/2006 **Masters in Geography** **84.4 % - Distinction**
Madurai Kamaraj University, Madurai (India) **University First Rank**
- 10/2010–05/2016 **PhD Geography**
Madurai Kamaraj University, Madurai (India)
Title of the thesis: Application of Geospatial Technologies in Land and Water Resources Evaluation for Sustainable Development of Andipatti Watershed, Tamil Nadu, India

04/2019–06/2019 **Post-Doctoral Research**

Indian Institute of Space Science and Technology, Dept. of Space, Thiruvananthapuram (India)

Funded by: Tamil Nadu State Council for Science and Technology (Young Scientist Fellowship)

Title of the project: Multi-hazard Risk Assessment in the Coastal Plains of Tamil Nadu using Spatial Multi-criteria Analysis

Technical skills

- Advanced user of GIS software with more than 12 years of expertise in data generation, spatial analysis, visualisation, model builder, python scripting and basic customisation
- Advanced user of image processing software with more than 15 years of expertise in image preprocessing, manipulation and feature extraction, including model maker, advanced tools for hyperspectral and microwave images, and knowledge-based classifier
- More than 12 years of experience in the field survey to collect physical-social-economical-health datasets
- Functional skills in various statistical packages/analytical systems/survey instruments
- Earned certifications from the National Institute of Disaster Management (India), National Remote Sensing Agency (India), ISRO-IIRS (India), GISTDA (Thailand), and ESRI (USA)

RESEARCH**Projects**

- Principal Investigator of **SERB funded core research grant** on Study of spatio-temporal geomorphic and land use dynamics of the Cauvery Delta for landscape and environmental management, 2021-2024 (Rs 34 lakhs)
- Co-Investigator of **ICMR-DHR** funded project on Climatic variability and its impact on vector-borne diseases – A GIS modelling of different climate zones of India, 2021-2023 (Rs.22 lakhs)
- Project Director of **ICSSR** funded project on Measuring vulnerability to coastal hazards in Tamil Nadu: Implications for policy formulation towards a resilient coastal society, 2019-2021 (Rs.4 lakhs)
- Co-Investigator in **DST Network Project** on imaging spectroscopy and applications to mitigating and managing urban heat islands, 2019-2021 (Rs.33 lakhs)
- Deputy Coordinator, **UGC-SAP DRS-II** Programme on Geoinformatics in Natural Resources Management, Department of Geography, Bharathidasan University, 2016-2017 (Rs.128 lakhs)

Consultancy

- Mapping of climate and coastal variables of the Indonesian islands for the international research project entitled "Evaluation of coastal vulnerability of Anoi Itam, Sabang Island to climate change and marine plastic waste: An integrated approach" funded by the **British Council** to University of Central Lancashire (UK), 2022
- Scientific assistance to conduct geoarchaeological survey in the Vaigai Basin (Keeladi) in collaboration with Tamil Nadu Archaeology Dept., and with the Beam Time Allotments (twice) from Inter-University Accelerator Centre (IUAC), New Delhi for 14C carbon dating 2018-2021
- Consultancy to the exploration of archaeological remnants through GPR survey at Srirangam Temple Site, Tiruchirappalli and Keeladi, Madurai (2016-2019)
- Scientific assistance to prepare District Disaster Management Plan (DDMP-2017) for Karur District <https://karur.nic.in/disaster-management/>

Guidance

- **Ph.D.** (Completed)
 - S. Leo George - Multi-hazard risk assessment in the coastal plains of Tamil Nadu, India - An integrated micro-level approach, 2019-2022
- **Ph.D.** (On-going)
 - M. Deepthi (JRF) - Modelling of estuarine dynamics in Cauvery Delta, 2021-2024
 - P. Ramesharavind (JRF) - Landscape dynamics in the Cauvery Delta, 2022-2025
- Guided 21 M.Tech / M.Sc. dissertations on diverse themes such as geospatial modelling, watershed management, suitability analysis, disaster risk assessment, and public health

PUBLICATIONS

Refereed Journals
(selected)

1. Nanjappa, D., Devaganga, K.P., Ramkumar, M. Nagarajan, R. Balasubramani, K. 2023. Physico-chemical Properties of the Vettar Estuarine Waters, Cauvery Basin, Southern India: Implications for Environmental Management. *Thalassas: An International Journal of Marine Sciences*. <https://doi.org/10.1007/s41208-023-00564-3> (IF: **0.951**)
2. Lalmalsawma, P., Balasubramani, K., James, M. M., Pautu, L., Prasad, K. A., Sarma, D. K., & Balabaskaran Nina, P. (2023). Malaria hotspots and climate change trends in the hyper-endemic malaria settings of Mizoram along the India–Bangladesh borders. *Scientific Reports*, 13(1), 4538. <https://doi.org/10.1038/s41598-023-31632-6> (IF: **4.996**)
3. Pautu, L., Lalmalsawma, P., Vanramliana, Balasubramani, K., et al., (2023). Seroprevalence of scrub typhus and other rickettsial diseases among the household rodents of Mizoram, North - East India. *Zoonoses and Public Health*, 70(3), 269-275. <https://doi.org/10.1111/zph.13025> (IF: **2.95**)
4. Balasubramani, K., Prasad, K. A.,..., Shekhar, S., & Balabaskaran Nina, P. (2022). Spatial epidemiology of acute respiratory infections in children under 5 years and associated risk factors in India: District-level analysis of health, household, and environmental datasets. *Frontiers in Public Health*, 10, 906248. <https://doi.org/10.3389/fpubh.2022.906248> (IF: **6.46**)
5. Sarma, D. K., Kumar, M., Balabaskaran Nina, P., Balasubramani, K., et al. (2022). An assessment of remotely sensed environmental variables on Dengue epidemiology in Central India. *PLOS Neglected Tropical Diseases*, 16(10), <https://doi.org/10.1371/journal.pntd.0010859> (IF: **4.71**)
6. Kantamaneni, K., Christie, D., Lyddon, C. E., Huang, P., Nizar, M., *Balasubramani, K.*, et al. (2022). A Comprehensive Assessment of Climate Change and Coastal Inundation through Satellite-Derived Datasets: A Case Study of Sabang Island, Indonesia. *Remote Sensing*, 14(12), 2857. <https://doi.org/10.3390/rs14122857> (IF: **5.35**)
7. Ramkumar, M., *Balasubramani, K.*, Santosh, M., Nagarajan, R. 2022. The Plastisphere: a morphometric genetic classification of plastic pollutants in the natural environment. *Gondwana Research*, In press <https://doi.org/10.1016/j.gr.2021.07.004> (IF: **6.15**)
8. George, Sekar L., Komali Kantamaneni, ...& K. Balasubramani. 2022. A Multi-Data Geospatial Approach for Understanding Flood Risk in the Coastal Plains of Tamil Nadu, India. *Earth*, 3(1): 383-400. <https://doi.org/10.3390/earth3010023>
9. Paulson, W., Kodali, N.K., Balasubramani, K. et al. (2022). Social and housing indicators of dengue and chikungunya in Indian adults aged 45 and above: Analysis of a nationally representative survey (2017-18). *Archives of Public Health*, 80, 125. <https://doi.org/10.1186/s13690-022-00868-5> (IF: **2.74**)
10. Priyadarshini, K.N., Shekhar, S., Sivashankari, V., *Balasubramani, K.*, Arun Prasad, K. 2021. Detecting heat-inducing urban built-up surface material with multi remote sensing datasets using reflectance and emission spectroscopy. *Remote Sensing of Environment*, 264(Oct), 112591 <https://doi.org/10.1016/j.rse.2021.112591> (IF: **13.85**)
11. *Balasubramani K*, Paulson W, ... & Nina, P. B. (2021) Epidemiology, Hot Spots, and Sociodemographic Risk Factors of Alcohol Consumption in Indian Men and Women: Analysis of National Family Health Survey-4 (2015-16). *Frontiers in Public Health* 9:617311. <https://doi.org/10.3389/fpubh.2021.617311> (IF: **6.467**)
12. *Balasubramani, K.*, Paulson, W. ...& Nina, P. B. (2021). District-level epidemiology, hot spots and socio-demographic determinants of tobacco use in Indian men and women: Analysis of national family health survey-4 (2015–16). *Public Health*, 194, 127–134. <https://doi.org/10.1016/j.puhe.2021.03.001> (IF: **4.98**)
13. *Balasubramani, K.*, Leo George, S., et al. (2021). Revealing the socio-economic vulnerability and multi-hazard risks at micro-administrative units in the coastal plains of Tamil Nadu, India. *Geomatics, Natural Hazards and Risk*, 12(1), 605–630. <https://doi.org/10.1080/19475705.2021.1886183> (IF: **3.92**)
14. Mohan, I., Kodali, N. K., Chellappan, S., Balasubramani, K., ... & Nina, P. B. (2021). Socio-economic and household determinants of malaria in adults aged 45 and above: Analysis of longitudinal ageing survey in India, 2017–2018. *Malaria Journal*, 20(1), 306. (IF: **3.47**) <https://doi.org/10.1186/s12936-021-03840-w>
15. Leo George, S., *Balasubramani, K.* et al. (2021). A comprehensive study on preparedness, impacts, response and recovery from tropical severe cyclonic storm ‘GAJA’: Lessons for the future. *Journal of Coastal Conservation*, 25(6), 58. <https://doi.org/10.1007/s11852-021-00842-3>. (IF: **2.1**)
16. Ramkumar, M., Kumaraswamy, K., *Balasubramani, K.*, et al. (2021). Neolithic cultural sites and extreme climate related channel avulsion: Evidence from the Vaigai River Basin, southern India. *Journal of*

Full publication details:

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- Archaeological Science: Reports, 40, 103204. <https://doi.org/10.1016/j.jasrep.2021.103204> (IF: 1.33)
17. *Balasubramani, K.,* Sarma, D. K., ... & Nina, P. B. (2021). Effect of climate change and deforestation on vector borne diseases in the North-Eastern Indian state of Mizoram bordering Myanmar. *The Journal of Climate Change and Health*, 2, 100015. <https://doi.org/10.1016/j.joclhm.2021.100015>
 18. Kannan, S., Ragavan, P., Gopalakrishnan, K., Salah, M., & Balasubramani, K. (2021). Mangrove floristics, forest structure and mapping of Neil Island (Andaman and Nicobar Islands, India) with emphasis on the diversity of *Rhizophora* species and the significance of small island mangroves. *Botanica Marina*, 64(3):227-241. <https://doi.org/10.1515/bot-2020-0075> (IF: 1.84)
 19. Balasubramani, K., Rutharvel Murthy, K., Gomathi, M., and Kumaraswamy, K., 2020. Integrated Assessment of Groundwater Resources in a Semi-arid Watershed of South India: Implications for Irrigated Agriculture. *GeoJournal*, 85, 1701–1723, <https://doi.org/10.1007/s10708-019-10050-0> (IF: 0.92)
 20. Sarma, D.K., Mohapatra, P.K., Bhattacharyya, D.R., Chellappan, S., Balasubramani, K., .. & Nina, P. B. 2019. Malaria in North-East India: Importance and Implications in the Era of Elimination. *Microorganisms*, 7(12), 673. <https://doi.org/10.3390/microorganisms7120673> (IF: 4.93)
 21. Ramkumar, M., Kumaraswamy, K., *Balasubramani, K.* et al. 2019. Discovery of buried historical structures in the Kaveri-Kollidam interfluvium, South India. *Archaeological Prospection*, 26:73-88, <https://doi.org/10.1002/arp.1724>(IF: 2.56)
 22. Ramkumar, M., Santosh, M., AbdulRahaman, S., Balasundareswaran, A., Balasubramani, K., et al. 2019. Tectono-morphological evolution of the Cauvery, Vaigai and Thamirabarani river basins: Implications on timing, stratigraphic markers, relative roles of intrinsic and extrinsic factors and transience of southern Indian landscape. *Geological Journal*, 54:2870-2911 <https://doi.org/10.1002/gj.3520> (IF: 2.49)
 23. Balasubramani, K., Gomathi, M., Bhaskaran, G. Kumaraswamy, K., 2019. GIS-based spatial multi-criteria approach for characterization and prioritization of micro-watersheds: a case study of semi-arid watershed, South India. *Applied Geomatics*, 11(3), 289-307. <https://doi.org/10.1007/s12518-019-00261-y> (IF: 0.5)
 24. *Balasubramani, K.* 2018. Physical Resources Assessment in a Semi-arid Watershed: An Integrated Methodology for Sustainable Land use Planning, *ISPRS Journal of Photogrammetry and Remote Sensing*, 142, 358-379. <https://doi.org/10.1016/j.isprsjprs.2018.03.008> (IF: 11.77)
 25. *Balasubramani, K.,* Veena, M., Kumaraswamy, K., and Saravanabavan, V., 2015. Estimation of Soil Erosion in a Semi-arid Watershed of Tamil Nadu (India) using Revised Universal Soil Loss Equation (RUSLE) Model through GIS. *Modeling Earth Systems and Environment*, 1(3), 1-17. <https://doi.org/10.1007/s40808-015-0015-4> (IF: 0.5)

Editorship and Review

- Assistant Editor of the *Indian Geographical Journal* (the oldest geographical journal in India publishes since 1926)
- Reviewer in *Nature Scientific Reports*, *Science of the Total Environment*, *Gondwana Research*, *Physical Geography*, *Environmental Earth Sciences*, *Journal of Environmental Management*, *Geological Journal*, *Arabian Journal of Geosciences*, *Land Degradation & Development*, *Human and Ecological Risk Assessment*, *Journal of the Indian Society of Remote Sensing*, *Journal of the Geological Society of India*, *GeoJournal* and other 10+ peer reviewed journals.
- Reviewed Global Edition textbooks entitled 1) *Geosystems: An Introduction to Physical Geography* and 2) *Human Geography: Places and Regions in Global Context* published by Pearson Education Ltd.
- Reviewed new school textbooks of Government of Tamil Nadu for Secondary Social Science (2017)
- Reviewed Project Proposals submitted to Kerala State Council for Science Technology and Environment, Government of Kerala

ADDITIONAL INFORMATION

Awards and Grants

- **Fulbright** Scholar-In-Residence Grant (2023-2024)
- Received **IGU Travel Grant** to attend 34th International Geography Congress, Istanbul, 2021 (conference held virtually due to covid-19)
- Received SERB (Govt. of India) **International Travel Grant** to participate in Pecora 21/ISRSE 38 Conference in Baltimore, **USA**, 2019

- **Young Scientist Fellowship** by Tamil Nadu State Council for Science and Technology, 2018
- Received ICSSR (Govt. of India) **International Travel Grant** to participate international conference in Peradeniya, **SRI LANKA**, 2018
- **Young Geographer Award** by National Association of Geographers, India, 2015
- **Scholar Applicant Grant** to participate in the international training course on 'Increasing Resilience Through Earth Observation' by GISTDA (Ministry of Science and Technology), Bangkok, **THAILAND**, 2014
- **Best Paper Award** in the National Seminar, University of Kerala, 2009 and Commendation Certificate for Paper Presentation in the 36th Indian Geography Congress, University of Rajasthan, 2014
- **University First Rank** in Graduate and Post Graduate Programmes

Appreciations

- Certificate of Appreciation for Promoting Geospatial Technology through IIRS-ISRO Outreach Programme, 2012-2020
- Achievement Award by Bharat Ratna Kamaraj Educational Society for contribution to the New School Curriculum and Textbooks of Government of Tamil Nadu, 2018
- Commendation Certificate for Contribution to Preparation of District Disaster Management Plan from Karur District Collector, 2017
- Certificate of Appreciation from the Vice-Chancellor for outstanding contribution to the Department of Geography, Bharathidasan University, 2015

Curriculum Development

- Developed self-learning tutorials for Data Analysis in GIS, Digital Image Processing and GIS Customization practical courses
- Subject Expert to introduce new curriculum of geography for college/universities in the State of Tamil Nadu and Karnataka
- Developed curriculum structure and syllabus for 1) M.Tech. Geoinformatics and Integrated M.Sc. Geography programme of Bharathidasan University, 2) M.Sc. Geography programme of Central University of Tamil Nadu, 3) Distance geography programme of University of Madras and Bharathidasan University, and 4) Graduate and Post Graduate degree programmes of various colleges in Tamil Nadu and Kerala
- Framed a new curriculum for Secondary Social Science students and reviewed the textbooks under the aegis of the State Council of Educational Research and Training, Chennai

Lectures / Conferences

- Presented more than 25 research papers at international and national conferences
- Delivered more than 100+ invited lectures in conference/workshops/faculty development programmes
- Organised international conferences, national seminars/workshops, faculty development programmes

Memberships

- Member in International Society for Photogrammetry and Remote Sensing (ISPRS), American Society for Photogrammetry and Remote Sensing (ASPRS 2020-21), IGU Commission on Hazard and Risk, International Geographical Union, Indian Society of Remote Sensing (ISRS), National Association of Geographers, India (NAGI), Indian Geographical Society (IGS), Institute of Indian Geographers (IIG)

Community Outreach

- Coordinated more than 50 outreach programmes on geospatial technologies in collaboration with the Indian Institute of Remote Sensing (ISRO), through which more than 500 students have benefitted so far
- Organised National Meet, International Conference, Faculty Development Programmes and Workshops
- Regional coordinator of State-wide Talent Test conducted every year by the Indian Geographical Society to identify young geographers (2011-)
- Regional coordinator of the International Earth Science Olympiad (IESO) conducted by the Geological Society of India for promoting geosciences among school children (2019-2021)
- Initiated Indian Society of Remote Sensing (ISRS)-Tiruchirappalli Chapter and acted as Founder Secretary (2016-2018)
- Contributed popular articles in news/magazines and delivered volunteer lectures in rural schools to raise environment and disaster risk awareness

Additional information about participation, organization and outreach are available at www.geobalas.blogspot.com