SUMAN DAS, PhD

Remote Sensing and GIS | Synthetic Aperture Radar | Coastal & Environmental Applications

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Scopus ID // ORCID // Research Gate // Google Scholar

PROFILE

PhD in Remote Sensing and GIS with 8+ years of research and teaching experience in SAR-based environmental monitoring, coastal and wetland ecosystem classification, and cloud-based geospatial analysis using Google Earth Engine. Author of 9 peer-reviewed publications, including Q1/Q2/Q4 journal articles and Springer/Elsevier book chapters, with NASA-ISRO (NISAR)-funded research experience. Six years of postgraduate teaching experience in Remote Sensing and GIS, combined with current applied leadership of GIS operations for a state forest and wildlife division. Seeking to contribute this research and teaching expertise to academic and research institutions in Remote Sensing and GIS, and interdisciplinary geospatial science.

RESEARCH INTERESTS

Remote Sensing and GIS | SAR Applications | Coastal, Wetland, and Mangrove Ecosystem Monitoring | Climate Change and Environmental Assessment | GeoAI & Machine Learning | Disaster & Hazard Assessment

EDUCATION

Degree	Institution	Year	Percentage
PhD, Remote Sensing and GIS	Vidyasagar University	2025	
M.Sc., Remote Sensing and GIS	Vidyasagar University	2017	68.42%
B.A., Geography (Hons.)	Subarnarekha Mahavidyalaya	2015	55.12%

Doctoral Thesis: "*Synergistic Use of Multispectral and Synthetic Aperture Radar (SAR) Data for Vegetation and Wetland Classification in Indian Sundarban***"**

TECHNICAL SKILLS

GIS and Remote Sensing Software:	ArcMap, QGIS, ERDAS Imagine, ENVI, SNAP,
Programming/Scripting:	R, Python
Geospatial Platforms and Tools:	Google Earth Engine (GEE) for cloud-based geospatial analysis
Remote Sensing Data and Sensors:	SAR (Sentinel – 1A), Optical/Multispectral (Sentinel-2, Landsat and MODIS), Hyperspectral (AVIRIS-NG)
UAV/Drone:	Drone image acquisition and processing using Agisoft Metashape software for geospatial mapping
Techniques	Mangrove Biomass, Wetland classification, Flood inundation & susceptibility mapping, Data fusion, GeoAI/ML applications
Scientific Writing	Research publications, technical reports, and documentation

PROFESSIONAL EXPERIENCE

GIS Expert **12/2025-Present**

Divisional Forest Officer, Mangrove Forest Division (Wildlife), Rajnagar, Kendrapara-754225, Odisha

Contributions

- Spatial analysis using GIS and Remote Sensing, Prepare GIS maps as per division's requirements
- Wildlife habitat assessment and monitoring, and support for forest management and conservation planning
- Drone image processing and geospatial database development
- Google Earth engine and cloud-based geospatial data analysis

Junior Research Fellow (JRF) **2/2018 - 3/2021**

Department: Remote Sensing and GIS, Vidyasagar University, Midnapore-721102, West Bengal

Eco-40- *NASA-ISRO (NISAR) project:*
Project Title: *Fishery Resource Study in Selected Area of Sundarban & Purba Medinipur District of West Bengal Using SAR & Optical data*

Research Contributions

- Performed multi-source geospatial analysis using SAR, AVIRIS-NG, Sentinel-2A, and Landsat datasets for environmental and coastal studies
- Developed methodologies for wetland classification using advanced remote sensing and GIS techniques
- Estimated cyclone-induced flood inundation in the Indian Sundarbans using SAR data on the Google Earth Engine (GEE) platform

GRANTS AND FELLOWSHIPS

- Junior Research Fellowship (JRF)ECO-40, NASA-ISRO (NISAR) Project, Funded by Space Applications Centre (SAC), ISRO, Ahmedabad; hosted at Department of Remote Sensing and GIS, Vidyasagar University (2018-2021).
- Swami Vivekananda Merit-cum-Means (SVMCM) Fellowship, Government of West Bengal (2021-2025)

RESEARCH PUBLICATIONS

A. Scopus Index Journal Articles

Karan, S. P., **Das, S.**, & Mandal, S. (2026). Urban heat island and land use land cover dynamics (1993–2022) in Haldia industrial region, West Bengal, India: a geospatial perspective. *Environmental Science and Pollution Research*, 1-30. DOI: https://doi.org/10.1007/s11356-026-37496-3 (**Q1 journal**)

Acharyya, N., Bandyopadhyay, J., & **Das, S.** (2024). Assessment of cyclone induced flood using microwave Synthetic Aperture Radar (SAR) data in four blocks of East Midnapore district, India"

in Disaster Advances, ISSN: 2278-4543, Volume 17, Issue04, 2024, pp. 40-47. DOI: https://doi.org/10.25303/174da040047 (**Q4 journal**)

Halder, B., **Das, S**., Bandyopadhyay, J., & Banik, P. (2021). The deadliest tropical cyclone 'Amphan': investigate the natural flood inundation over south 24 Parganas using google earth engine. *Safety in extreme environments*, *3*(1), 63-73. DOI: https://doi.org/10.1007/s42797-021-00035-z (**Q2 journal**)

B. Peer-Reviewed Journal Papers

Karan, S., Mandal, S., & **Das, S.** (2024). Assessment of Landscape Change and its Relationships with Surface Temperature and Geo-spatial Indices during 1992-2022 at Haldia Industrial Region, West Bengal, India. *Knowledge-Based Engineering and Sciences*, *5*(2), 54-74. DOI: https://doi.org/10.51526/kbes.2024.5.2.54-74

Das, S., Bandyopadhyay, J., Acharyya, N., & Maity, S. (2023): A Comparative study on Sentinel-1A SAR and Sentinel-2A optical data for wetland mapping: A case study in G Plot and L Block, Sundarban, West Bengal, India. Indian Cartographer, ISSN: 2278-4543, Volume 43, Issue01, 2023, pp. 68-84.

Bandyopadhyay, J., Paul, A., Mondal, P., **Das, S**., Sardar, J., & Mohammad, L (2021). Delineation of site suitability mapping units for fishing zones using geo-spatial technology in Kakdwip Sub-division, south west part of Sundarban, India. International Journal of Ecology and Environmental Sciences, ISSN: 2664-7133(Online), 2664-7125 (Print), Volume 03, Issue 01, 2021, pp. 451-460.

C. Book Chapters

Bandyopadhyay, J., **Das, S**., Mahapatra, S., & Acharyya, N. (2025). Microclimatic Impact of Land Surface Temperature on Land Use/Land Cover in Sankrail Block of Jhargram District, West Bengal, India. In *India III: Climate Change and Landscape Issues in India: A Cross-Disciplinary Framework* (pp. 129-151). Cham: Springer Nature Switzerland. DOI: https://doi.org/10.1007/978-3-031-85126-1_5 **(Scopus Index)**

Das, S., Bandyopadhyay, J., Acharyya, N., & Maity, S. (2025). Flood Susceptibility Mapping Using Microwave Sentinel-1A Data and Analytical Hierarchy Process (AHP) in Lowland Area of Keleghai River Basin. In *Remotely Sensed Rivers in the Age of Anthropocene* (pp. 37-60). Cham: Springer Nature Switzerland. DOI: https://doi.org/10.1007/978-3-031-82311-4_3 **(Scopus Index)**

Das, S., Bandyopadhyay, J., Acharyya, N., Jana, M., & Maity, S. (2024). Impact of soil salinity on the increasing trends of Aqua farming in the coastal blocks of Purba Medinipur District: a Geospatial Approach. *Developments in Environmental Science*, *16*, 153-181. DOI: https://doi.org/10.1016/B978-0-443-23665-5.00007-7 **(Scopus Index)**

D. Conference Papers

Rali Hansda, **Suman Das**, Jatisankar Bandyopadhyay, Nirupam Acharyya (2024): Development Assessment in Tribal Dominated Blocks of Jhargram District, West Bengal, India: A Geospatial Approach. Proceedings of the International Conference on Emerging Issues in Environment, Livelihood and Development: A Future Road Map Towards Sustainable Earth at Department of Geography & Applied Geography, University of North Bengal, Darjeeling - 734013, West Bengal, India, January 26-28, 2024.

Suman Das, Lal Mohammad, Bijay Halder, Jatisankar Bandyopadhyay, and Saroj Maity (2020): A Quantitative Analysis and Spatial Dynamics of Inland Waterbody and Vegetation Cover: A Case Study of Super Cyclone Amphan on G Plot and L Block of Sundarban, India. ISRS-ISG National Symposium–2020, SAC-ISRO, Ahmedabad, December 18 – 19, 2020.

ACADEMIC AND TEACHING EXPERIENCE

Guest Teacher **(2019–2025)**

Department of Remote Sensing and GIS, Vidyasagar University

Responsibilities

- Developed course materials and assessments and taught postgraduate courses in Remote Sensing and GIS.
- Conducted practical GIS and Remote Sensing classes, supporting hands-on and applied geospatial learning.
- Guided student research and project work.

WORKSHOPS/CONFERENCE/TRAINING

Presented "Assessment the temporal change of Mangrove induced Wetland to understand the stress of climate change: Dulibhasani forest area, Sundarban, India" at 7th Regional Science & Technology Congress, 2024-25 held on 3rd and 4th January, 2025 at ***Midnapore College (Autonomous), Midnapore-721101, West Bengal.***

Presented "Classification of Coastal Wetland using Multi-Temporal Multispectral Data for Dhanchi Island, Sundarban, India" at the conference on "Emerging Issues in Environment, Livelihood and Development: A Future Road Map Towards Sustainable Earth", ***Department of Geography & Applied Geography, University of North Bengal, India*** on 26th to 28th January, 2024.

Presented "Assessment of Land use Land cover dynamics and environmental impacts on the hard laterite soil zone of Jhargram districts using Geo-spatial techniques" at the ***5th Regional Science and Technology Congress 2022-2023, Raja N. L. Khan Women's College (Autonomous), Midnapore-721102***, 13th -14th January, 2023.

Completed "Evaluating ecosystem Services with Remote Sensing" under ***NASA"s Applied Remote Sensing Training*** Program, August 23, 25 and 30 of 2022.

Presented "Assessment of Change in Coastal Waterbodies with Synthetic Aperture Radar Data Using Geospatial Techniques" at conference on 11th International Conference on Ecological Informatics (ICEI 2020+1) At: ***C V Raman Laboratory of Ecological Informatics, School of Informatics, Digital University Kerala***, November 9-13, 2021.

Completed "Mapping and Monitoring Lakes and Reservoirs with Satellite Observation" under ***NASA"s Applied Remote Sensing Training*** Program during February 9, 16, 23 of 2021.

Completed "Introduction to population Grids and their integration with Remote Sensing Data for Sustainable development and Disaster management" under ***NASA"s Applied Remote Sensing Training Program*** during March 30 and April 6, 2021.

Presented “A quantitative analysis and spatial dynamics of Inland waterbody and Vegetation Cover: A case study of super Cyclonic Amphan on G Plot and L Block of Sundarban, India” at conference on “Remote Sensing for Environment Monitoring & Climate Change Assessment: Opportunities and Challenges”; ***Indian Society of Remote Sensing (ISRS) & Indian Society of Geomatics (ISG),*** December 18-19, 2020.

Completed “NRDMS-DST Winter School on Geospatial Technologies Level-2: Theme “Disaster Management using Geospatial technologies” conducted from 9th January 2020 to 29th January 2020 by the Department of Geography, The University of Burdwan, Purba Bardhhaman, West Bengal and supported by ***Natural Resources Data Management System-Department of Science and Technology, Govt. of India, New Delhi.***

Completed “SAR data processing and Analysis for Land Applications with Special Emphasis on L and S Bands” under TREES (Training and Research in Earth Eco-System) at ***Space Applications Centre (SAC), ISRO*** during August 06-10, 2018.

Attended **the NISAR** Science Workshop organized at Space Applications Centre Ahmedabad during 15-17 November, 2018.

PEER- REVIEW EXPERIENCE

Reviewed for

Urban Climate - Elsevier

Advances in Space Research - Elsevier

Sustainable Horizon - Elsevier

Marine Development - Springer