MANAN SARUPRIA
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UNIVERSITY OF DELAWARE
Department of Geography & Spatial Sciences

EDUCATION

Ph.D. (2022 -)	University of Delaware Geography and Spatial Sciences Advisor: Dr. Pinki Mondal Co-Advisor: Dr. Rodrigo Vargas
MS 2021 (Magna cum laude)	Katholieke Universiteit Leuven Water Resources Engineering Advisor: Dr. Patrick Willems
BE 2019 (Honors)	Birla Institute of Technology and Science Pilani, Goa Chemical Engineering Advisor: Dr. Suresh Valiyaveettil, Department of Chemistry, National University of Singapore

PUBLICATIONS

Journal Articles

Miller, J., Mondal, P., **Sarupria, M.** Sensor Based Measurements of Small Grain and Corn Fields by Tractor, Drone, and Satellite Platforms. *Crop and Environment (Submitted for review)*

Sarupria, M., Manjare, S.D., Girap, M. Environmental impact assessment studies for mining area in Goa, India, using the new approach. *Environmental Monitoring and Assessment. December 2018. 12;191(1):18. doi: 10.1007/s10661-018-7135-z. PMID: 30542806*.

Dhingra, K., Gupta, S., **Sarupria, M.**, Nambi Krishnan, J., Kumar, S. A Study on the Role of Additives in Non-Cyanide Baths for the Fabrication of Anisotropic Metallic Nanostructures. *ECS Transactions. October 2017. 80. 777-788. doi: 10.1149/08010.0777ecst*

CONFERENCE PRESENTATIONS

1) DENIN Symposium - April 12, 2023 - Poster
   Title: Quantifying salt-impacted farmlands in Delmarva using remote sensing
   Author: Manan Sarupria, Pinki Mondal
   Venue: University of Delaware Conference Services, Newark, DE

2) ESA (Ecological Society of America) Annual Meeting - April 1, 2023 - Poster
   Title: Spectral unmixing of satellite images for quantifying salt-impacted farmlands in Delmarva
   Author: Manan Sarupria, Pinki Mondal
   Venue: University of Delaware Conference Services, Newark, DE

3) AAG (American Association of Geographers) - March 27, 2023 - Talk
   Title: Estimating the impacts of saltwater intrusion on Coastal Farmlands of Delmarva Peninsula using Sentinel-2 Imagery and spectral unmixing.
   Author: Manan Sarupria, Matthew Walter, Pinki Mondal
   Venue: Hyatt Regency, Denver, Colorado

4) Blue Tech Workshop - March 16, 2023 - Poster
   Title: Spectral unmixing of satellite images for quantifying salt-impacted farmlands in Delmarva
   Author: Manan Sarupria, Pinki Mondal
   Venue: Embassy Suites by Hilton Newark Wilmington South

5) Delaware Environmental Monitoring Summit 2023 organized by Delaware Environmental Monitoring Coordination Council - March 15, 2023 - Poster
   Title: Spectral unmixing of satellite images for quantifying salt-impacted farmlands in Delmarva
   Author: Manan Sarupria, Pinki Mondal
   Venue: University of Delaware Conference Services, Newark, DE

6) DARWIN Symposium - Feb 23, 2023 - Poster
   Title: Spectral unmixing of satellite images for quantifying salt-impacted farmlands in Delmarva
   Author: Manan Sarupria, Pinki Mondal
   Venue: Audion of STAR Tower, University of Delaware

7) AGU (American Geophysical Union) – December 14, 2022 – Poster
   Title: Mapping Salt–Impacted Coastal Farmlands of Delmarva Peninsula Using Sentinel-2 Imagery
   Author: Manan Sarupria, Pinki Mondal
   Venue: Virtual Attendance

8) 11th ESA (European Space Agency) Advanced Course on Land Remote Sensing with focus on EO for Agriculture and Water – November 24, 2022 - Poster
   Title: Spectral Unmixing for Mapping Salt–Impacted Coastal Farmlands in the Eastern United States using Sentinel-2 Imagery
   Author: Manan Sarupria, Pinki Mondal
   Venue: Institute of Advanced Studies Kőszeg (iASK) - Felsőbbfokú Tanulmányok Intézete Koszeg, Hungary

9) GIS Day – November 16, 2022 – Poster and Map Design Competition
   Title: Spectral Unmixing for Mapping Salt-Impacted Costal Farmlands in the Eastern United States using Sentinel-2 Imagery
   Author: Manan Sarupria, Pinki Mondal

Venue: Gore Recital Hall in the Roselle Centre, Newark, DE

10) GIS Day – November 16, 2022 –Map Design Competition
Title: Catastrophic Flooding in Pakistan: Extent and Impact
Author: Manan Sarupria, Matthew Walter
Awarded: Honorable mention
Venue: Gore Recital Hall in the Roselle Centre, Newark, DE

11) 13th Sustainable Development of Energy, Water and Environment System (SDEWES) Conference - October 2018
Title: Environmental impact assessment studies for mining area in Goa, India, using the new approach.
Author: Manan Sarupria**,** Sampatrao. D. Manjare, Mohan Girap
Type: Paper presentation.
Venue: Palermo, Italy

12) 232nd Electro Chemical Society (ECS) Conference - October 2017
Title: A Study on the Role of Additives in Non-Cyanide Baths for the Fabrication of Anisotropic Metallic Nanostructures
Author: Dhingra, K., Gupta, S., Sarupria, M., Nambi Krishnan, J., Kumar, S.
Type: Paper presentation.
Venue: Washington DC, USA

RESEARCH EXPERIENCE

2021 *Hydrological Impact Assessment of climate change for the late 21st century using fine scale modeling.*

- The aim of the project was to perform climate change risk assessment, extreme hydrological event analysis, uncertainty analysis.
- Main methods involved were dynamically and statistically downscaling climate data from Global Climate Models (GCM) which were used to drive Local Impact Models (LIM) to produce future climate projections.
- Skills - Statistical downscaling of climate data, bias correction, hydrological modelling, R and MATLAB programming for statistical modelling and data analysis.

2021 *Air Quality mapping using multispectral optical data from Sentinel-2.*

- Level 2a and Level 1c data was processed for summer and winter seasons.
- Image classification was done using supervised and unsupervised classification algorithms.
- Qualitative assessment of air pollution (PM10) was done for Leuven, Belgium using QGIS.

2021 *Soil moisture retrieval from L-band data of NASA's SMAP mission.*

- MATLAB script was developed to retrieve soil moisture using the concepts of forward and backward radiative transfer models in passive microwave remote sensing.

2021 *Running and analyzing the Community Land Model.*

- A climate model with seasonal variation in vegetation was compared with satellite observations.
- A script was developed in Linux to run the climate model using the super-computer 'Hydra' at Vrije University.
- Python language was used to extract data from NetCDF files and perform statistical and spatial analysis of the differences in model and observed climate data.

2021 *Computing Solar Capacity factor.*

- A script was developed on Google Earth Engine to compute the solar capacity factor and evaluate its seasonal and spatial variation.
- Influence of parameters like temperature and irradiance were deeply studied.

2020 *Northern hemisphere lake ice assessment using satellite and model simulated data.*

- A python script was developed to produce monthly maps of ice thickness, plot bias maps for annual number of ice-covered days, plots daily time series and monthly comparative bar graphs of the percentage of modelled ice-covered lakes.

2020 *Water resource management of Lake Urmia.*

- Relationships between social, economic, political aspects of the society and the hydrological cycle of the region were studied deeply.
- Involvement of different stakeholders was analyzed at various levels of the hydro-social system.
- An elaborate DPSIR (Driver - Pressure - State - Impact - Response) scheme was proposed for the case study.

2019 *Environmental and Water Audit for Zuari Agro Chemical Industry.*

- An environmental audit was done for 4 fertilizer producing plants: Ammonia, Urea, NPK-A and NPK-B.
- Pollutant emissions from stack, surrounding atmosphere air quality, solid waste disposal practices and wastewater treatment practices were extensively monitored.
- Amendments were proposed to the environmental policies for carbon footprint reduction.
- Funded by: Goa State Pollution Control Board

FELLOWSHIPS

2018 Awarded by BITS Pilani Goa, Alumni Relations Cell for exceptional research in the field of Water and Environment.

AWARDS & HONORS

2023 Data Science Institute Fellow at the University of Delaware

2022 Honorable Mention at University of Delaware Student Competition for Geospatial Data Visualization/Map Design.

2022 1 of the 50 selected participants for the European Space Agency Advanced Training Course on Land Remote Sensing in collaboration with Institute of Advanced Studies Kőszeg (iASK) at Koszeg, Hungary.

ACADEMIC LEADERSHIP AND SERVICE

2022 Department representative at IDEA committee: Inclusion, Diversity, Equity, and Accountability at the University of Delaware.

PROFESSIONAL DEVELOPMENT ACTIVITIES

2022 Vice President of the Indian Graduate Student Association at the University of Delaware.

2019 Class representative for 2 consecutive years for the Master's program in Water Resources Engineering at KU Leuven, Belgium.

COMMUNITY ENGAGEMENT

2022 Teacher Professional Development Webinar; DE Sea Grant Consortium Data Discussion: Saltwater Intrusion on Coastal Farmlands of Delmarva.

MEDIA COVERAGE

2022 UDaily article covering Sarupria's research fieldwork on saltwater intrusion.

TECHNICAL SKILLS

Coding Languages:
Python, JavaScript, R, MATLAB, BASH

Geospatial Analysis:
ArcGIS Pro (proficient)
QGIS (proficient)
Google Earth Engine (proficient) – JavaScript
ENVI (moderate)
SNAP (basic)

Quantitative Data Analysis:
Spyder, Jupyter notebooks and Google Collaboratory - Python (proficient)
Microsoft Excel (proficient)
R Studio – R (moderate)

Modeling & Simulation:

***Hydrology*:**
QSWAT+ (proficient)
MODFLOW (proficient)
HGS (basic)

Climate:
CLM (Community Land Model) using High-performance computing – BASH (moderate)

Fluid Flow and Chemical Engineering Design:
COMSOL (moderate)
ASPEN+ (basic)

Mechanical Design:
AUTOCAD

Reference:

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Assistant Professor, Department of Geography & Spatial Sciences
Joint appointment: Department of Plant & Soil Sciences
Resident Faculty, Data Science Institute
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