

8. Academic Programme

CSIR-4PI maintains an active academic programme, keeping its objective of developing skill and expertise in mathematical modelling & computer simulation, data intensive research in the country. The activities span the entire spectrum from PhD guidance to undergraduate/postgraduate student projects to specialized courses. Student Programme for Advancement of Research Knowledge (SPARK) is intended to provide a unique opportunity to bright and motivated students of reputed Universities to carry out their major project/thesis work and advance their research knowledge in mathematical modelling and simulation of complex systems. Students and professionals from a wide spectrum of organizations including industries across the country have been benefiting from our various academic programmes over the years. CSIR-4PI is very actively engaged with the AcSIR (Academy of Scientific & Innovative Research) PhD program in Mathematical and Information Science, Physical Science and Engineering Science.

Inside:

- Ph.D Programme
- M.Tech/BE/MCA student's Thesis/Project
- Research Fellowship Programme
- Faculty Participation

8.1 Ph.D Programme

- **Anil Earnest**
Silpa K, (AcSIR), A study on Indian plate seismogenesis using kinematic slip distribution models of selected earthquakes. Submitted.
- **Gouda K C**
Radhika TV, (VTU), Efficient and Large-Scale Climate Simulation Analysis in Cloud Computing Cluster.
Payoshni Samantray, (VTU), Study of Extreme Rainfall Events due to Cloud Burst using Observation and Model Simulation.
Rani Devi (AcSIR), Dynamics High Impact Weather & Climate over India.
Smrutishree Lenka (VTU), Role of air-sea interaction processes on climate system.
- **Himesh S (Guide), Rakesh V (Co-guide)**
Ajilesh P (VTU), Characteristics of Urban Extreme Rainfall Events over the Indian Cities: An Observational and Modelling Study.
- **Himesh S (Guide), Gouda K C (Co-guide)**
Sanjeeb Kumar Sahoo (VTU), Impact of Urbanization on High Impact Weather Events Local Climate.
- **Kantha Rao Bhimala (Guide), G K Patra (Co-guide)**
Prasad Babu Kanike (AcSIR), Data Analytics to Identify the Relationship between the Land Surface Meteorological Parameters and Indian Summer Monsoon Rainfall.
- **Mohapatra G N (Guide), Rakesh V (Co-guide)**
Smrati Purwar (AcSIR), Modelling of spatio-temporal variation in urban extreme rainfall events with special focus on localised versus large-scale impacts.
- **Parvez I A**
Ramiz Raja Mir (AcSIR), The study of crustal evolution and Earthquake Hazard in Kashmir Himalayas. Awarded.
S Vishal Gupta (ISM Dhanbad), Site specific seismic hazard study in Kashmir Valley, North-west Himalayas.
- **Patra G K**
Ashapura Marndi (AcSIR), Time Series Analysis with Deep Learning: Applications to Environmental Data. Awarded.
S Gunasekaran, (AcSIR), Challenges in Design, development and testing of Autonomous Aerial Refueling capability.
Manmohan Brahma, (AcSIR), Optimization of DNN inference on CPU/GPU Platform.
Anju Sharma, (AcSIR), Multi-sensor data fusion strategies and algorithms for health assessment of Mechanical systems.
- **Rajendran K**
Ipsita Putatunda, (AcSIR), Characteristics of heating and moisture in tropics: An observational study. Submitted.

- **Rakesh V**
Ajay Bankar (AcSIR), Impact of data assimilation in mesoscale models.
Praveen S (VTU), Role of background error statistics in mesoscale data assimilation.
- **Ramesh KV**
Alfred Johny (AcSIR), Simulation of Indian Summer Monsoon using CMIP5 Climate Simulations
Edwin Raj E, (UPASI TRF TRI), Climate Impact Assessment on Tea Production over South India. Awarded.
Neethu C V (VTU), Modelling the role of land-atmosphere interaction during heatwaves.
Swetha Sivakumar,(AcSIR), Modelling the role of air-sea interactions on tropical cyclone intensification and a post cyclone damage assessment using multi-spectral Remote Sensing observations.
- **Sajani Surendran**
Arya V B, (AcSIR), The impact of regional aerosols on Indian summer monsoon rainfall and variability. Completed Pre-thesis Colloquium.
- **Sajani Surendran (Guide), Rajendran K (Co-guide)**
Stella Jes Varghese, (AcSIR), Impact of resolution and deep convection scheme on simulation of Indian summer monsoon and its projection under multiple RCPs using multiforcing ensembles. Submitted.
- **Sridevi Jade**
Chiranjeevi Vivek G, (AcSIR), GNSS signal processing and analysis to study impact on position estimates.
Sivasai Kumar Rajana, KLEF university GNSS based remote sensing over Indian Sub-continent.
- **Vidyadhar Mudkavi**
Kanaka Muthu, CSIR-NAL, (NIT), Experimental and computational investigation of diffuser augmented small wind turbine.
Rinku A, CSIR-NAL, (IISc, Bangalore), Modular design of ribs in aircraft wings using topology and size optimization and non-dimensional analysis.
- **Vijayan M S M**
Shimna K, (AcSIR), Detection and Characterisation of Ionospheric Perturbations Induced by Tsunami, Strike-Slip and Thrust Earthquakes. Awarded.

8.2 M. Tech/BE/MCA student's Thesis/Project

- **Anil Earnest**
Rakesh Kumar Sahoo, Quantitative River Profile Analysis to Investigate the Active Tectonic of the Central Himalaya, Department of Geology, Central University of Karnataka, January 2021.
- **Gouda KC**
Kiran M Hungund, M.Tech (Geo-informatics), Karnataka Remote Sensing Application Centre (VTU), Bengaluru, Surface Temperature and pollution Analysis using Remote Sensing and GIS techniques.

Sweta Kumawat, Jain University, Summer 2020
 Preetam S, Dayananda Sagar Institute of Technology, Bangalore.
 Sudeep Kumar and Shyam, Cambridge Inst of Technology, Bangalore.
 Subham Chatterjee, Jadavpur University, Kolkata (CSIR SRTP).
 Leander V Felix, Reva University, Bangalore (CSIR SRTP).

- **Patra G K**

Mr Mrinmoy Roy, Lovely Professional University, Phagwara, Panjab, CSIR Summer Research and Training Program (SRTP).

Deepra Ghosh, Depart. Of Stastics, Calcutta University, Kolkata, West Bengal, (SRTP).

Shreenidhi N, Dept. of Applied Mathematics & Computational Sciences, PSG College of Technology, Coimbatore, Tamilnadu, (SRTP).

Bharathi A, Dept. of Applied Mathematics Computational Sciences, PSG College of Technology, Coimbatore, Tamilnadu, (SRTP).

Deepak Kumar, Dept. of Mathematics Computing, IIT ISM Dhanbad, Jharkhand,(SRTP).

- **Ramesh K V**

Vishrutha Bangera, MIT Manipal, Quantification of impact of climate change on procurable water and its future prospects over Dakshina Kannada region.

Raksha Shetty, MIT Manipal, Developing mitigation strategies for climate stress in integrated farming systems over Udupi District: a system dynamic approach.

Krithika K M, MIT Manipal, Change detection and analysis of the land use and land cover for Almora district in the state of Uttarakhand.

Krithika K M, MIT Manipal Dynamics of pollutants distribution over Bangalore.

Vinaya S, Cochin University of Science Technology, Kochi, A brief study on Mangrove cover in Cuddalore district, Tamil Nadu.

8.3 Research Fellowship Programme

- **Sumana Sarkar**

RA, CSIR

Assessing the Impact of regional climate change on hydrological Processes and water budget over Cauvery river basin in Karnataka

8.4 Faculty Participation

- **Gouda KC**

Training programme on AI, ML and Big Data for in-service Indian Statistical Service (ISS) officers at C R Rao AIMSCS, Hyderabad on 18th September 2020 and 17th March 2021.

- **Marndi Ashapura**

Machine Learning Training Programme”, in the Inversion and Machine Learning Applications for Geoscience Data Analysis, 8-27th March 2021 (sponsored by Min. of Earth Sciences Govt. of India).

- **Parvez I A**

Earthquake Hazard Studies in India, at the International Virtual Workshop on Global Seismology and Tectonics organized by CSIR NEIST, Jorhat as Key-Note speaker on September 25, 2020.

- **Patra G K**

Machine Learning Training Programme”, in the Inversion and Machine Learning Applications

for Geoscience Data Analysis, 8-27th March 2021 (sponsored by Mi. of Earth Sciences Govt. of India).

The COVID19 activities using various mathematical and statistical backgrounds at CSIR-4PI and the contribution of open source software for faster research”, Five day online Faculty Development Program on “Mathematical Concepts by using Free Open Source Softwares (FOSS)” from 21st to 25th July 2020" at BMSITM, Bengaluru.

- **Rakesh V**

Expert workshop on “Agricultural Pest and Disease Simulation Modelling under a Climate Change Scenario” Jointly organized by UAS, Bangalore & ICRISAT, Patancheru (24-28th August 2020)

Data modelling: Developing different (regression, VAR, ARIMA) models for crop disease forecasting.

Hands on Basic training on data handling and programming and experiments with Data models

- **Ramesh K V**

Expert workshop on “Agricultural Pest and Disease Simulation Modelling under a Climate Change Scenario” Jointly organized by UAS, Bangalore ICRISAT, Patancheru (24-28th August 2020)

Hands on “Application of Deep learning techniques in developing disease forecast models: time series and Image analytics

