

## **Prof. (Dr.) Rajib Maity**

**Professor, Department of Civil Engineering, Indian Institute of Technology Kharagpur,  
Kharagpur – 721302, West Bengal, India**

Fellow, Royal Meteorological Society, FRMetS (UK), A K Singh Chair Faculty (IIT Kharagpur),  
Humboldt Fellow (Germany), BOYSCAST Fellow (India/USA), Emerging Leaders Fellow  
(Australia), DAAD Fellowship (Germany), ICE-WaRM Fellowship (Australia)

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### **1. Research Interests:**

- **Broad Research Areas:** Hydroclimatology and Water Resources Engineering.
- **Specific Research Interests:**
  - i) Hydroclimatic Teleconnection: Large Scale Coupled Circulation Patterns and Indian Summer Monsoon Rainfall (ISMR), Time-Invariant and Time-Varying Approaches.
  - ii) Modelling of Climate Change Impacts Assessment: Effect of climate change on hydrology and water resources, Hydrological Systems in a Changing Environment, Bias correction and downscaling.
  - iii) Analysis of Hydroclimatic Extremes: Spatio-temporal change in rainfall extremes, Analysis and hydroclimatic modeling of droughts, Probable Maximum Precipitation.
  - iv) Sea Level Rise: Hydroclimatic modelling of local Sea Level Rise, Coastal vulnerability and future impacts.
  - v) Statistical Methods in Hydrology and Hydroclimatology: Time series analysis and forecasting, Copula theory in hydroclimatic analysis, Graphical Modelling, Probabilistic prediction and uncertainty quantification.
  - vi) Remote Sensing Applications in Hydrology: Application of remote sensing for soil moisture assessment.
  - vii) Artificial Intelligence and Machine Learning: Application of Support Vector Machines (SVM), Artificial Neural Network (ANN), Genetic Algorithm and Genetic Programming (GA/GP), Evolutionary Optimizer, Deep Learning (DL) etc. in hydroclimatology.

## 2. Academic Background:

- **Doctor of Philosophy (PhD):**

Department of Civil Engineering, Indian Institute of Science, Bangalore, India, 2007, Submitted PhD Thesis in a record time (then) of 2 years 5 months and 16 days in the group of Water Resources and Environmental Engineering, Department of Civil Engineering, Indian Institute of Science, Bangalore.

**Title of PhD Thesis:** Impact of large-scale coupled Atmospheric-Oceanic circulation on hydrologic variability and uncertainty through hydroclimatic teleconnection.

- **Master of Engineering (ME):**

In 'Hydromechanics and Water Resources Engineering' from Department of Civil Engineering, Indian Institute of Science, Bangalore, India in 2004. 1<sup>st</sup> Class with distinction, (CGPA 7.7 out of 8), Topper in Civil Engineering Department (Prof. N S Govinda Rao Medalist).

**Title of M E Dissertation:** Hydrologic Time Series Analysis and Forecasting with Climatic Inputs.

- **Bachelor of Engineering (BE):**

In 'Civil Engineering' from Department Civil Engineering, Bengal Engineering College (Deemed University), currently known as Indian Institute of Engineering Science and Technology (IIST), Shibpur, Howrah, West Bengal, India in 1999. 1<sup>st</sup> Class (82.16 %). Topper in the department in 2<sup>nd</sup> and 7<sup>th</sup> semester, Overall 3<sup>rd</sup> out of 92 students in the department.

## 3. Employment and Professional Experience:

- **Academic Experience (in reverse chronological order):**

- 1) **Professor**, Department of Civil Engineering, Indian Institute of Technology, Kharagpur, West Bengal, from December 22, 2022 to till date.
- 2) **Associate Professor**, Department of Civil Engineering, Indian Institute of Technology, Kharagpur, West Bengal, from December 30, 2014 to December 21, 2022.
- 3) **Assistant Professor**, Department of Civil Engineering, Indian Institute of Technology, Kharagpur, West Bengal, from December 15, 2008 to December 29, 2014.
- 4) **Assistant Professor**, Department of Civil Engineering, Indian Institute of Technology Bombay, Mumbai, from June 7, 2007 to December 12, 2008.

- **Industrial Experience (3 years):**

- 1) Consulting Engineering Services (I) Pvt. Ltd., Kolkata, (July 17, 1999 to July 20, 2002).

#### 4. Visiting Positions/Professorships:

- i) **Guest Scientist as Humboldt Fellow:** Institute of Meteorology and Climatology (IMK-IFU), Karlsruhe Institute of Technology (KIT), Campus Alpin, Germany, from June 2016 – May 2017 (1 year), April – June 2018 (3 months), December 2018 – February 2019 (3 months), and September 2022 (awarded by Alexander von Humboldt Foundation, Germany).
- ii) **Visiting Faculty:** Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Yokohama, Japan, during March 15-23, 2018, September 30 – October 06, 2018, and January 08-16, 2019.
- iii) **Emerging Leaders Fellow:** Australia India Institute (AII), University of Melbourne, Victoria, Australia, from May 10, 2012 – June 29, 2012.
- iv) **Visiting Researcher as BOYSCAST Fellow:** School of Civil Engineering, Purdue University, West Lafayette, Indiana, USA, from August 12, 2011 – December 29, 2011.
- v) **Visiting Faculty through DAAD Fellowship:** Academic and Research Department Engineering Hydrology, Faculty of Civil Engineering, RWTH Aachen University, Germany, from May 18, 2010 – July 12, 2010.
- vi) **Honorary Visiting Scholar through ICE-WaRM Fellowship:** Department of Earth Science, Flinders University, Adelaide, Australia, from May 26, 2008 – June 25, 2008.

#### 5. Academic Awards/ Recognitions/Achievements:

1. **Fellow, Royal Meteorological Society, UK (2021):** Elected as a Fellow of the Royal Meteorological Society, UK, with effect from 28 July 2021, in recognition of substantial contributions in Research and development, Teaching, and Publications.
2. **A K Singh Chair Faculty (2020):** Awarded by IIT Kharagpur for research and academic contributions in the field of Artificial Intelligence (AI) and/or its application in different domains of science and technology. Award carries a top up salary of INR 25,000/- per month for two years.
3. **Associate Editor:** Scientific Reports, published by Nature from August 2022 till date.
4. **Associate Editor:** ASCE Journal of Hydrologic Engineering, Published by American Society of Civil Engineers (ASCE) from February 2021 till date.
5. **Faculty Excellence Award (2018):** Awarded by IIT Kharagpur for outstanding contributions towards Teaching, Research and Institutional development. The award carries a citation and top up salary of INR 15,000/- per month for two years.
6. **James Rennell MoES Young Fellow (2016):** Awarded by Ministry of Earth Sciences (MoES) in collaboration with IIT Kharagpur. The fellowship carries a citation and top up salary of INR 20,000/- per month for one year.
7. **Humboldt Fellowship under Experienced Researchers Category (2015):** Awarded Humboldt Fellowship by Alexander von Humboldt Foundation, Germany. Visited Karlsruhe Institute of Technology, Germany as a Guest Scientist for 18 months.
8. **Top Teaching Feedback Responses:** Recognition from Director, IIT Kharagpur for Receiving Top Teaching Feedback for the Academic Session 2014-15.

9. **Review Editor:** Frontiers in Environmental Science in the speciality section of Interdisciplinary Climate Studies.
10. **Associate Editor:** Journal of Earth System Science (JESS), Published by Springer from May 2014 to October 2020.
11. **Associate Editor:** ISH Journal of Hydraulic Engineering, published by Taylor and Francis, United Kingdom from February 2014 till date.
12. **Prof. R. J. Garde Research Award (2012):** Awarded by the Executive Council of Indian Society for Hydraulics for outstanding research in the field of Hydraulics and Water Resources in the Category of Young Scientist. The award contains a trophy, citation and cash prize.
13. **ASCE 2011 Outstanding Reviewer (2012):** Selected by the Editor of Journal of Hydrologic Engineering, American Society of Civil Engineers (ASCE) in 2012.
14. **Emerging Leaders Fellow (2011):** Awarded by Australia India Institute at the University of Melbourne, Australia for the year 2011-2012.
15. **BOYSCAST Fellow (2011):** Awarded Better Opportunities for Young Scientists in Chosen Areas of Science & Technology (BOYSCAST) fellowship by the Department of Science and Technology (DST), Govt. of India for the year 2010-11.
16. **IEI Young Engineers Award (2011):** Awarded by the Institution of Engineers (India) in recognition of my outstanding contribution in the field of environmental engineering.
17. **DAAD Fellowship (2010):** Awarded by German Academic Exchange Service (DAAD) through the program called 'Exchange of IIT faculty' under memorandum of understanding between the DAAD and IITs for research visit to RWTH Aachen, Germany.
18. **International ICE WaRM Fellowship (2008):** Awarded by the 'International Centre of Excellence in Water Resources Management (ICE WaRM)', an Australia Government Initiative.
19. **Fast Track Project Grant for Young Scientists (2007):** Received from Science and Engineering Research Council (SERC), Department of Science and Technology (DST), Govt. of India. Grade awarded 'Excellent' (Ref. No. SR/FTP/ETA-26/2007 dated 9<sup>th</sup> May 2014)
20. **National Doctoral Fellowship (2004):** Awarded by All India Council for Technical Education (AICTE) through a competitive selection among all the doctoral students in India.
21. **Prof. N. S. Govinda Rao Memorial Medal (2004):** Awarded by Indian Institute of Science (IISc) for being adjudged as the best ME student among all specializations in the Department of Civil Engineering, IISc, Bangalore, in the year 2003-2004.
22. Obtained GATE Percentile **99.33** and secured **46<sup>th</sup> All India Rank** in 2002.
23. **Merit Scholarship:** Awarded by Government of India in 1993 for the performance in board examination at 10<sup>th</sup> standard.
24. **National Scholarships:** Awarded for talented children from rural areas at secondary school study during 1990 – 1991 at 8<sup>th</sup> standard.

## 6. Research Students:

### Summary:

**Post-doc: 01**

**PhD: 10 (completed), 7 (Ongoing)**

**MS and MTech: 21 (completed), 5 (ongoing)**

### Details of Post-doc

- 1) **Dr. Sumana Sarkar** – Research Associate from November 29, 2017 to June 28, 2018

### Details of PhD students

#### Completed

- 1) **Dr. Kashid Satishkumar Shahajirao** (Completed in 2010; shared with another faculty)  
Thesis Title: Basic-scale streamflow forecasting using hydrometeorological and hydroclimatological inputs  
[Working as a Professor in Walchand Institute of Technology, Solapur, Maharashtra](#)
- 2) **Dr. Parag P Bhagwat** (Completed in 2013 at IIT Kharagpur)  
Thesis Title: Streamflow Response of a Watershed to Meteorological Variables: Development of Hydroclimatic Conceptual Model  
[Joined as Assistant Professor at Faculty of Science, Water and Land Management Institute, Aurangabad, Maharashtra](#)
- 3) **Dr. Sarit Kumar Das** (Completed in 2015 at IIT Kharagpur)  
Thesis Title: Hydrometeorological Approach for Probabilistic Soil Moisture Simulation using Climate Inputs  
[Joined as Assistant Professor, in the Department of Civil Engineering, NIT Sikkim, India. Also, received an offer from DST-Inspire Faculty.](#)
- 4) **Dr. Kironmala Chanda** (Completed in 2016 at IIT Kharagpur)  
Thesis Title: Characterization and Hydroclimatic Prediction of Droughts in the Context of Changing Climate  
[Joined as Assistant Professor in the Department of Civil Engineering, Indian Institute of Technology \(Indian School of Mines\) Dhanbad, Jharkhand](#)
- 5) **Dr. Anindita Patra** (Completed in 2018; Co-Guide; shared with another faculty)  
Thesis Title: Wind-Wave Climate Variability over the Head Bay of Bengal  
[Post-doc at Climate Change Research Lab, Pohang University of Science and Technology \(POSTECH\), South Korea](#)

- 6) **Dr. Manali Pal** (Completed in 2018 at IIT Kharagpur)  
Thesis Title: Probabilistic Estimation of Surface and Vertical Soil Moisture Profile using Satellite-based Remotely Sensed Observations  
[Joined as Assistant Professor \(Grade-II\) in the Department of Civil Engineering, National Institute of Technology, Warangal](#)
- 7) **Dr. Subbarao Pichuka** (Completed in 2019 at IIT Kharagpur)  
Thesis Title: Time-varying Downscaling Approach for Assessment of Climate Change Impacts on Hydroclimatic Variables Considering Nonstationarity  
[Joined as Assistant Professor \(Grade-II\) in the Department of Civil Engineering, National Institute of Technology, Andhra Pradesh](#)
- 8) **Dr. Naren A** (Completed in 2020 at IIT Kharagpur)  
Thesis Title: Hydroclimatic Modelling of Local Sea Level Rise and its Impact on Coastal Regions  
[Received Post-doc offer from Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, China;](#)  
[\(Joined as Ad-hoc faculty in the Department of Civil Engineering, National Institute of Technology, Andhra Pradesh\)](#)
- 9) **Mr. Mayank Suman** (Completed in 2021)  
Thesis Title: Analysis and modeling of hydrological extremes under changing climate across India  
[Assistant Professor \(Grade-II\) in the Department of Civil Engineering, Indian Institute of Technology Jodhpur, Rajasthan.](#)
- 10) **Ms. Riya Dutta** (Completed in 2022)  
Thesis Title: Hydroclimatic modelling of non-stationary processes in a changing climate through the concept of time-varying framework  
[Received an offer for postdoctoral research fellow from Department of Water Resources and Environmental Modeling, Czech University of Life Sciences Prague \(CZU\).](#)

### **Ongoing**

- 11) **Mr. Subharthi Sarkar** (Ongoing; Joined in July 2017)
- 12) **Mr. Imran Khan** (Ongoing; Joined in Jan 2018)
- 13) **Ms. Subhasmita Dash** (Ongoing; Joined in July 2018)
- 14) **Mr. Subhra Sekhar Maity** (Ongoing; Joined in 2019) (PMRF Fellow)
- 15) **Ms. Taroo Bashir Naqash** (Ongoing; Joined in 2019; External Student from NIT Srinagar)
- 16) **Mr. Ashesh Rudra Paul** (Ongoing; Joined in 2020)
- 17) **Mr. Aman Srivastava** (Ongoing; Joined in 2021; shared with another faculty) (PMRF Fellow)

### **Details of MS/MTech students**

#### **Completed**

- 1) **Ms. Riya Dutta** (MS Student, completed in 2018)  
Thesis Title: Potential of Graphical Modelling Approach in Multivariate Hydroclimatic Applications: Analysis and Forecasting
- 2) **Mr. Ashish Bhatnagar** (MTech Student, Completed in 2009; Co-guide)  
Thesis Title: Hydrologic time series analysis using support vector regression
- 3) **Mr. Mahesh D Sawant** (MTech Student, Completed in 2010)  
Thesis Title: Uncertainty Quantification for Predicted Streamflow through a Semiparametric Approach
- 4) **Mr. Dhanesh Prashad** (MTech Student, Completed in 2010)  
Thesis Title: Probabilistic Rainfall Prediction by Split Markov Process (SMP)
- 5) **Ms. Kironmala Chanda** (MTech Student, Completed in 2011)  
Thesis Title: Assessment of probabilistic dependence of rainfall and streamflow on Outgoing Longwave Radiation using Plackett Copula
- 6) **Ms. Haritha V P** (MTech Student, Completed in 2011)  
Thesis Title: Hydroclimatic approach for streamflow forecasting using Bayesian dynamic linear models
- 7) **Mr. Selva Balaji M** (MTech Student, Completed in 2012; Co-Guide – Prof. S Dey)  
Thesis Title: Graphical Model on Reynolds Shear Stress in Flow about a Cylinder
- 8) **Mr. Chandan Roy** (MTech Student, Completed in 2012)  
Thesis Title: IHACRES model for distributed watershed modeling
- 9) **Ms. Debshri Swargiary** (MTech Student, Completed in 2013)  
Thesis Title: Spatio-temporal variation of annual daily extreme rainfall across India using both observed and CMIP5 data
- 10) **Mr. SVB Patel** (MTech Student, Completed in 2013)  
Thesis Title: Gradual Change in Monthwise Extreme Daily Streamflow of Mahanadi River
- 11) **Mr. Nitesh Kumar Verma** (MTech Student, Completed in 2014)  
Thesis Title: Characterization of Different Types of droughts and their temporal Correspondence at a River basin Scale

12) **Ms. Manasa S M** (MTech Student, Completed in 2014)

Thesis Title: Modelling of Regional Sea Level Rise using Semi-Empirical Hydroclimatic Approach

13) **Mr. Akash Koppa** (MTech Student, Completed in 2014; Co-Guide – Prof. Kuntsmann, Karlsruhe Institute of Technology, Germany)

Thesis Title: A Coupled Atmospheric-Hydrologic Model of the Mahanadi River Basin

14) **Mr. Mayank Suman** (MTech Student, Completed in 2015)

Thesis Title: Hybrid Wavelet-Auto-Regressive Model with Exogeneous Inputs (WAVELET-ARX) for Modelling Hydro-Meteorological Associations at River Basin Scale

15) **Mr. Rajendra Prasad R** (MTech Student, Completed in 2016)

Thesis Title: Impact of Climate Change on the Pattern of Daily Extremes in the Inflow to Bhadra Reservoir

16) **Mr. Bhagarathi Sahu** (MTech Student, Completed in 2018; Co-Guide – Prof. VR Desai)

Thesis Title: Analysis of Trends and Variability of Droughts over the Indian Monsoon Region Using Standardized Precipitation Anomaly Index (SPAI)

17) **Mr. Neeraj Kumar** (MTech Student, Completed in 2019)

Thesis Title: A Deep Learning Approach for Multi-step ahead Daily Rainfall Prediction

18) **Mr. Addagarla Dheeraj Bhanu** (MTech Student, Completed in 2021)

Thesis Title: Regional Rainfall Forecasting Using Machine Learning Approach

19) **Mr. Vikram Chugh** (MTech Student, Completed in 2021)

Thesis Title: Developing Soil Moisture Prediction Models using Machine Learning

20) **Mr. Shubham Kumar** (MTech Student, Completed in 2022)

Thesis Title: Modeling Climate Change impacts on Vector-borne disease using Machine Learning models: Case Study of Visceral leishmaniasis (Kala-azar) from Indian state of Bihar

21) **Mr. Prince Abraham** (MTech Student, Completed in 2022)

Thesis Title: Assessment of Basin-scale Climate Change Impact on Precipitation Extremes using CMIP6 Simulations



### **MS/MTech Ongoing**

- 22) **Mr. Lavudiya Balachandra Naik** (Joined in 2019; Taken a temporary withdrawal and joined to Nuclear Power Corporation of India Limited)
- 23) **Ms. Sreya T U** (Joined in 2022)
- 24) **Mr. Rohit Prasad Shaw** (Joined in 2022)
- 25) **Ms. Shilpa T M** (18CE35001, Joined in 2022)
- 26) **Mr. Yogesh Kumar Yadav** (18EE3AI25, Joined in 2022)

Details of other students on Temporary Research Assistants and Bachelor Students for BTech Projects are provided in **Annexure – A**

## **7. Projects**

Total amount – > 416 lakhs + foreign component, honorarium etc., if applicable

Total amount as PI – > ~397 lakhs + foreign component, honorarium etc., if applicable

- Projects are grouped into three categories –
  - 1) Sponsored Projects – Completed: 09, Ongoing: 04
  - 2) Projects related to Web Course Development – Completed: 04
  - 3) Consultancy Projects – Completed: 05

**Please refer to Annexure – B for details of all the projects**

## **8. Research Publications:**

### **Summary**

Books– 02

Book Chapters – 14

Patent/Copyright - 01

Refereed Journals – 83

Conferences and Symposia – 74

Technical Reports – 07

**Please refer to Annexure – C for complete list of publications**

## 9. Personal Details:

- **Date of Birth:** November 05, 1977.
- **Place of Birth:** West Bengal, India
- **Nationality:** Indian
- **Category:** General
- **Marital Status:** Married

## 10. Teaching Responsibilities:

### Under Graduates:

#### At IIT Kharagpur

1. **Water Resources Engineering:** For 2<sup>nd</sup> year BTech Students
2. **Hydraulics:** For 2<sup>nd</sup> year BTech Students
3. **Statistical Methods in Hydrology:** For 3<sup>rd</sup> year BTech and MTech Students
4. **Engineering Drawing and Computer Graphics:** For 1<sup>st</sup> year BTech Students, shared with another faculty.

#### Earlier at IIT Bombay

5. **Fluid Mechanics-I:** For 2<sup>nd</sup> year BTech Students
6. **Fluid Mechanics-I lab:** For 2<sup>nd</sup> year BTech Students, shared with another faculty.
7. **Fluid Mechanics-II lab:** For 2<sup>nd</sup> year BTech Students, shared with another faculty.

### Post Graduates:

#### At IIT Kharagpur

1. **Applied Hydrology:** For MTech and PhD Students.
2. **Integrated Water Resources Management:** For MTech and PhD Students, shared with another faculty.
3. **Stochastic Hydrology:** Proposed for MTech and PhD Students.

#### Earlier at IIT Bombay

4. **Advanced Stochastic Hydrology:** (proposed and approved) For MTech and PhD Students.

## 11. Administrative Responsibilities:

- 1) **Co-opted Member of the Expert Committee:** Engineering Science section, Science & Engineering Research Board (SERB), DST, Govt. of India, from November 06, 2018 till date
- 2) **Vice-Chairperson:** Career Development Centre (CDC), IIT Kharagpur (Training and Placement office) from January 01, 2021 till date.
- 3) **Coordinating Faculty:** Departmental coordinating faculty for the institute level Interdisciplinary Dual Degree Program (IDDP) on AI/ML and Applications in the Centre of Excellence in Artificial intelligence (CoEAI) from 2022 till date
- 4) **PMRF Expert Committee Member:** Invited to serve as an expert member in the Prime Minister's Research Fellows (PMRF) Evaluation committee (December 2021).
- 5) **Warden:** BR Ambedkar Hall of Residence, IIT Kharagpur, from July 01, 2019 to June 30, 2021.
- 6) **Chairperson:** Kshitij 2020, Techno-management festival of IIT Kharagpur.
- 7) **Vice-Chairman:** Students' Brotherhood Fund Committee (SBFC) from January 2016 to April 2016.
- 8) **Assistant Warden:** LLR Hall of Residence, IIT Kharagpur, from March 2013 to April 2016.
- 9) **Section-In-Charge:** Hydraulic and Water Resources Engineering (HWRE), Department of Civil Engineering, IIT Kharagpur: July 2015 to April 2016.
- 10) **Member:** Departmental Administrative Committee from July 2019 to June 2022.
- 11) **In-charge:** Departmental timetable from July 2017 to August 2019
- 12) **Examination-in-charge:** Departmental examination from July 2017 to June 2021.
- 13) **Faculty Advisor:** BTech/Dual Degree students for 2009-2013 batch (Civil Engineering)
- 14) **Departmental ERP Representative:** Associated in the development of ERP system of the institute from July 2009 to June 2012.
- 15) **General Secretary:** Committee of Department Faculty Members from July 2012 to June 2015
- 16) **Professor-in-Charge:** Departmental representative for Training & Placement of the Institute from July 2013 to June 2014.
- 17) **Professor-in-Charge:** Departmental representative for Career Development Centre of the Institute from July 2014 to June 2015.
- 18) **Member:** Department Post Graduate Committee (DPGC), Department of civil Engineering, IIT Bombay from August 2007 to November, 2008.
- 19) **Time Table Coordinator:** Department of Civil Engineering, IIT Bombay from August 2008 to November 2008.
- 20) **Member:** Meetings committee of American Geophysical Union (AGU) for 2008-2010 term

## **12. QIP/CEP Courses, Workshops etc.:**

1. Conducted a CEP course on ‘Hydrologic Impacts of Climate Change and Sustainable Development’ during July 4-5, 2008 at IIT Bombay.
2. Delivered a lecture on ‘Incorporation of Climate Change Effect for Indian Hydroclimatology’ for QIP/CEP short-term course on ‘Soft Computing Techniques in Water Resources Management’ at IIT Bombay.
3. Coordinator of a CEP course on ‘In-service Training Program on Hydrology and Water Resources Engineering’ targeting to working engineers of govt. of Chhattisgarh, India, during April 25-27, 2013.
4. Workshop Co-coordinator: “Extending the value of data: a national workshop on novel analysis for soil and water resources” – a collaboration with the University of Sydney during January 04 - 07, 2015.
5. Course coordinator of a short course on ‘Hydrologic Design in a Changing Climate’ during May 30-31, 2015.
6. Delivered a lecture as a resource person in an AICTE QIP Program on ‘Advanced Computing Tools in Civil Engineering (ACTCE 2018)’ held at IIT Kharagpur during March 05-09, 2018.
7. Organized one-day seminar and workshop on ‘Machine Learning in Climate change impact studies using MATLAB’ at Department of Civil Engineering, IIT Kharagpur on November 21, 2022.

## **13. Invited Talks**

### **International:**

1. Invited speaker at the 10<sup>th</sup> Beijing Humboldt Forum Forum on Earth Science and Sustainable Development, at Institute of Soil Science, Chinese Academy of Sciences, on September 18, 2022.
2. Delivered a talk on ‘Concept of Time-varying Characteristics in Seasonal Predictions’ at the Institute of Meteorology and Climate Research (IMK-IFU), Karlsruhe Institute of Technology (KIT), Germany on February 13, 2019.
3. Invited talk on ‘Temporal evolution of hydroclimatic teleconnection and development of a time varying model for long-lead prediction of Indian summer monsoon rainfall’ at Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Yokohama, Japan on October 02, 2018.

4. Invited talk on ‘Hydroclimatic Modelling for Teleconnection, Downscaling, Probabilistic Prediction using Statistical and AI based Techniques’ at Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Yokohama, Japan on March 20, 2018.
5. Invited speaker in a session on ‘Impact & Consequences of Changing Climate and Landuse on Hydrology’ in the 14<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2017) at Singapore during 6-11 August 2017, Singapore.
6. Delivered a lecture on ‘Hydroclimatic approaches for analyzing droughts in a changing climate’ at the 14<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2017) at Singapore during 6-11 August 2017, Singapore.
7. Delivered Institute Lecture on ‘Two approaches for soil moisture estimation: Hydrometeorological and Remote Sensing’ at the Institute of Meteorology and Climate Research (IMK-IFU), Karlsruhe Institute of Technology (KIT), Germany on January 24, 2017.
8. Delivered a lecture on ‘Hydro-Climatic association and impacts on water resources and hydrology: Issues and Challenges’ at the Institute of Meteorology and Climate Research (IMK-IFU), Karlsruhe Institute of Technology (KIT), Germany, on July 13, 2016.
9. Delivered a lecture on ‘Climate Change: A Burning Issue – Hydroclimatic Teleconnection in the Context of Climate Forcing on Hydrologic Variables: An Indian Perspective’ at Australia India Institute, Melbourne University, Melbourne, Australia. Web link: <http://www.aii.unimelb.edu.au/events/climate-change-burning-issue>, in 2012
10. Delivered a lecture on ‘Bayesian Dynamic Linear Modelling for ISMR using ENSO and EQUINOO’ at School of Civil Engineering, Purdue University, West Lafayette, Indiana, USA, in 2011.
11. Delivered a lecture on ‘Probabilistic Prediction and nonparametric quantification of uncertainty using copula’ at the School of Civil and Environmental Engineering, University of New South Wales (UNSW), Sydney, Australia, in 2008.
12. Delivered a lecture on ‘Incorporation of Climate Change Effect on Indian Hydroclimatology’ at the Australia Asia Water Centre, Adelaide, Australia, as a part of ICE WaRM Seminar Series on ‘Water resources in India: problems and approaches’, in 2008.
13. Delivered a lecture on ‘Probabilistic Prediction of hydroclimatic time series with nonparametric quantification of uncertainty’ at Department of Earth Science, Flinders University, Adelaide, Australia in 2008.

**National:**

14. Delivered a lecture on 'Hydroclimatic Analysis of Drought in a River Basin' at Two Days National Workshop on Impact of Climate Change on River Basin Management (ICCORIBAM-2013), held at Government College of Engineering, Aurangabad, August 16-17, 2013.
15. Delivered a lecture on 'Probabilistic Estimation of Soil Moisture from RISAT1 Data along with Uncertainty Quantification' in User Interface Meet 2015, National Remote Sensing Centre (NRSC), Hyderabad, India during January 21-22, 2015.
16. Delivered a lecture on 'Characterization of Droughts in the context of Indian Hydroclimatology and Identification of Drought Triggers for a River Basin' in the 1<sup>st</sup> brainstorming session on "River Engineering Solutions and their implementation" held during July 9-10, 2015 in Centre for Water Resources Studies (CWRS), Department of Civil Engineering, NIT, Patna.
17. Invited talk on "Hydroclimatic Analysis and Modeling to Incorporate the Influence of Climate Variables on Hydrology and Water Resources" at NIT Meghalaya on November 19, 2015.
18. Invited talk on "Hydroclimatic approaches for analyzing droughts in a changing climate" for the Interdisciplinary Programme in Climate Studies at the Indian Institute of Technology Bombay on October 25, 2017.
19. Invited talk on "An overview of hydroclimatology: Emphasis on soil moisture modeling and sea level rise" at the SRM University, Chennai on December 16, 2017.
20. Invited talk on "Temporal evolution of hydroclimatic teleconnection and long-lead prediction of Indian summer monsoon rainfall using a time varying model" at the workshop on "Advances in Earth System Science" held at Banaras Hindu University (BHU) during, October 31 - November 01, 2018.
21. Keynote lecture on "Soil Moisture Estimation through Hydrometeorological and Remote Sensing Approaches" at HYDRO International conference 2018, held at NIT Patna during December 19-21, 2018.
22. Invited talk on "Machine Learning in Hydroclimatology" at the Brainstorm Meeting on Application of AI/ML in Earth Science Problems held at Indian Institute of Tropical Meteorology (IITM), Pune during March 25-27, 2019.
23. Invited as a resource person in a TEQIP-II Program at NIT Silchar on 'Recent advances on Water and Environmental studies' during February 15-16, 2019.

24. Invited as a resource person to deliver a lecture on 'Hydroclimatic Analysis of Drought in a River Basin' at Workshop on Integrated Soil Water Modeling (ISWM-2019), held at NIT Silchar, April 08-12, 2019.
25. Invited talk on 'Introduction to Hydroclimatology: Recent developments in downscaling and bias correction of climate variables' as an Invited speaker at TEQIP sponsored seminar on 'Climate Change and Water Crisis' held at Civil Engineering Department, Indian Institute of Engineering, Science and Technology (IIEST), Shibpur on June 21, 2019.
26. Invited for a lead talk on 'Time-varying approaches in hydroclimatic analysis and modelling' as an Invited speaker at National Conference on 'Challenges in Earth System Sciences for Global Sustainability (CESSGS)' at the Centre for Oceans, Rivers, Atmosphere and Land Sciences (CORAL) at Indian Institute of Technology, Kharagpur during 15-16 January, 2020.
27. Invited to deliver a lecture in the training program to Nirman Sahayaks of West Bengal, India on 'Rain water harvesting, artificial recharge and check dam construction' at Ghani Khan Chaudhury Institute of Engineering and Technology (GKCIET), Malda, West Bengal, during February 04-07, 2020.
28. Invited to deliver a lecture in the 03 Weeks Online Training Programme on "Hydrometeorological and Extreme Events Disaster Risk Management", jointly organized by Discipline of Civil Engineering, IIT Indore and National Institute of Disaster Management, New Delhi, during 01-19 June 2020 (Online).
29. Invited to deliver a lecture in the International Webinar on "Climate Change Impact on Water Resources Management and Environment", organized by the Department of Civil Engineering, Andhra University College of Engineering, Visakhapatnam, during 15-19 July 2020 (Online).
30. Invited to deliver a lecture on "Hydroclimatic modelling in a changing climate", in the FDP programme on Climate and Hydrologic Extremes organized by the Department of Civil Engineering, Karunya Institute of Technology and Sciences, Coimbatore, Tamil Nadu, India during 20th - 24th July, 2020 (Online).
31. Invited to deliver a lecture in the International Virtual Workshop on "Climate Change Impact on Water Resources Systems" organized by the Department of Civil Engineering, NIT Silchar, during 28<sup>th</sup> September – 2<sup>nd</sup> October, 2020 (Online).
32. Invited to deliver a guest lecture for the Environmental Studies Lecture series at VIT-AP University, Amaravati, Andhra Pradesh, on November 10, 2020 (Online).

33. Invited to deliver a lecture in the QIP short-term course titled “Multivariate statistical methods and applications” organized by Discipline of Civil Engineering, IIT Indore during December 02-05, 2020 (Online).
34. Invited to deliver a keynote lecture in the HYDRO 2020-International Conference on Hydraulics, Water Resources, and Coastal Engineering, organized by Department of Civil Engineering, National Institute of Technology Rourkela, In association with the Indian Society for Hydraulics(ISH), Pune, India during March 26-28, 2021.
35. Invited to deliver a keynote lecture in the HYDRO 2021-International Conference on Hydraulics, Water Resources, and Coastal Engineering, organized by Department of Civil Engineering, National Institute of Technology Rourkela, In association with the Indian Society for Hydraulics (ISH), Pune, India during December 23-25, 2021.
36. Invited to deliver a keynote lecture for the Faculty Development Programme (FDP) on Advances in Water Resources Management, organized by Civil Engineering Department, NIT Andhra Pradesh, during May 16-20, 2022.
37. Invited to deliver an expert lecture in the GIAN course on Spatial Analysis for Water Resource Modelling and Management during June 13-17, 2022 at Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat, Gujarat.
38. Invited as a keynote speaker in the inaugural session SERB-sponsored high-end workshop of interdisciplinary nature titled “Agricultural Water Management in the Backdrop of Climate Change using Remote Sensing, GIS, and IoT Techniques”, organized by Shiv Nadar University, Delhi-NCR during July 21-27, 2022.
39. Invited as an Invited Speaker at the International Conference on Sustainability: Integrated and Scientific Approach (ICS-2022) to be held in Virtual Mode organized by the University of Mumbai from August 4-6, 2022.
40. Invited as a guest speaker in the seminar on “Climate Change and Survival of Life” to commemorate 75 years of India's Independence “Azadi Ka Amrit Mahotsav” at Regional Meteorological Centre, Alipore, Kolkata, jointly organized by India Meteorological Department, Ministry of Earth Sciences, GoI and Indian Meteorological Society, Kolkata Chapter on August 10, 2022.



#### 14. Other Academic Work:

- PhD Thesis Examiner:

##### **International**

Thesis title: Developing a spatiotemporal climate forecasting model for agriculture applications

Candidate: Maryam Montazerolghaem,

Doctoral Guide(s): Dr. Willem Vervoort

Institute: The University of Sydney, Australia (September 2015)

##### **National**

- i) Thesis title: Impact assessment of climate change and anthropogenic actions on streamflow characteristics, hydropower and environmental flow of Omo–Gibe river basin in Ethiopia

Candidate: Tewodros Tesfaye Woldemariam

Guide(s): Dr. C T Dhanya and Prof. A K Gosain

Institute: IIT Delhi, India (November 2019)

- ii) Thesis title: Understanding the Role of Extreme Temperature and Rainfall Deficits on Drought and Agricultural Yield in India

Candidate: Mariam Zachariah

Guide(s): Dr. Arpita Mondal

Institute: IIT Bombay, India (December 2021)

- iii) Thesis title: Development of a Hybrid Model for Predicting Summer Monsoon Rainfall over Maharashtra

Candidate: Shilpa Manoj Hudnurkar

Guide(s): Dr. Neela Rayavarapu

Institute: Symbiosis Institute of Technology, Pune, India (September 2022)

- Member of the Doctoral Committee of Ms. Athira K, PhD Student in the Department of Civil Engineering, IIT Palakkad (Supervisor: Dr. Sarmistha Singh, IIT Palakkad).
- MS Thesis Examiner of Mr. Mukesh Sharma, IIT Kharagpur and invited to conduct viva-voce examination on February 13, 2018.
- Member of technical advisory committee member of 27<sup>th</sup> HYDRO 2022 International Conference on Hydraulics, Water Resources and Coastal Engineering, held at Punjab Engineering College, Chandigarh, India, December 22-24, 2022.
- Convener of a session on “Machine Learning in Weather, Climate and Hydrological Analysis and Predictions” (Session code: AS14) in the 19<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2022) at Singapore during August 01-06, 2022.

- Member of technical advisory committee member of 26<sup>th</sup> HYDRO 2021 International Conference on Hydraulics, Water Resources and Coastal Engineering, held at Sardar Vallabhbhai National Institute of Technology, Surat, Gujarat, India, December 23-25, 2021.
- Co-convener and co-chair of a session on “Hydrological change: regional hydrological behaviour under transient climate and land use conditions” (Session ID: HS2.4.2) in EGU General Assembly 2021 during April 19-30, 2021, at Vienna, Austria.
- Co-convener and co-chair of a session on “Machine Learning Techniques in Weather, Climate, Hydrology and Disease Predictions” in Japan Geoscience Union Meeting 2021 (JpGU 2021) at Yokohama during May 30- June 01 (On-site), and June 03-06 (online), 2021.
- Co-convener and co-chair of a session on “Impacts and Consequences of Changing Climate and Landuse on Hydrology (HS-12)” in 18<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2021) at Singapore during August 01-06, 2021.
- Co-convener and co-chair of a session on “Machine Learning in Weather, Climatological and Hydrological Analysis, Predictions and Applications (AS-12)” in 18<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2021) at Singapore during August 01-06, 2021.
- Co-convener and co-chair of a session on “Hydrological change: Regional hydrological behaviour under transient climate and land use conditions” (Session ID: HS2.4.7) in EGU General Assembly 2020 during May 03-08, 2020, at Vienna, Austria.
- Member of the advisory committee for IWA YWP First Trans-Asia Conference on Smart technologies in Water and Wastewater Management at Vellore Institute of Technology (VIT), Vellore from December 16-19, 2020.
- Co-convener and co-chair of a session on “Hydrological change: Regional hydrological behaviour under transient climate and land use conditions” (Session ID: HS2.4.5) in EGU General Assembly 2019 during April 07-12, 2019, at Vienna, Austria.
- Member of National Advisory Committee HYDRO 2019 International Conference in association with Indian Society for Hydraulics (ISH), Pune scheduled from 18-20, December 2019 at the Civil Engineering Department, UCE, Osmania University. Hyderabad, India.
- Session chair of a session under the theme of “Climate Change Analysis” in HYDRO 2019 International Conference held at NIT Patna, Bihar India during December 19-21, 2019.
- Co-convener and co-chair of a session on “Hydrologic Extremes in a Changing Climate (HS-10)” in 16<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2019) at Singapore during July 28 – August 02, 2019.
- Co-convener and co-chair of a session on “Impacts and Consequences of Changing Climate and Landuse on Hydrology (HS-16)” in 16<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2019) at Singapore during July 28 – August 02, 2019.
- Member of technical advisory committee member of HYDRO 2018 International conference on Hydraulics, Water Resources and Coastal Engineering, held at NIT Patna, Bihar India, December 19-21, 2018.

- Reviewer of project proposal for Monsoon Mission (II), Ministry of Earth Sciences (MoES), Government of India.
- Co-convenor and co-chair of a session on “Hydrology in a Changing World: Challenges in Modeling (HS-08)” in 15<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2018) at Honolulu, Hawaii during June 03-08, 2018.
- Convener and co-chair of a session on “Hydrologic Extremes in a Changing Climate (HS-15)” in 15<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2018) at Honolulu, Hawaii during June 03-08, 2018.
- External expert for the Comprehensive meeting for Ms. G. Purnadurga, SRM University, organized on 16th December 2017.
- Co-convenor and co-chair of a session on “Hydrological change: Regional hydrological behaviour under transient climate and land use conditions” (Session ID: HS2.4.1) in EGU General Assembly 2018 during 8-13 April, 2018, at Vienna, Austria.
- Co-chair of a session on “Impacts and Consequences of Changing Climate and Landuse on Hydrology (HS-11)” in 14<sup>th</sup> Annual Meeting of Asia Oceania Geosciences Society (AOGS 2017) at Singapore during 6-11 August 2017.
- Session Chair of the *Special Session on Extreme Events in a Changing Climate* in the 7<sup>th</sup> *International Conference on Sustainable Built Environment (ICSBE-2016)*, Kandy, Sri Lanka during December 16-19, 2016.
- Recommended as an expert by the Chairperson of the Domain Expert Committee to be a reviewer of the ‘Call for Proposals’ (Phase III) evaluation under IMPRINT, an initiative of the MHRD.
- Panelist and co-chair of a session in the national conference on ‘*Sustainable Water Resources Management and Impact of Climate Change*’, March 5 – 6, 2010 at BITS-Pilani, Hyderabad campus.
- Member of the organizing committee for National Conference on Hydraulics, Water Resources, Coastal and Environment Engineering (HYDRO – 2009), December 17-18, 2009 at CWPRS, Pune.
- Member of the organizing committee for National Conference on Hydraulics, Water Resources, Coastal and Environment Engineering (HYDRO – 2012), December 7-8, 2012 at IIT Bombay, Mumbai.
- Coordinator, Scientific Committee for 5<sup>th</sup> International Congress of Environmental Research (ICER-12), November 22-24, 2012 at UMT, Terengganu (Malaysia).
- Member of the technical committee of the National Conference on “Sustainable Water Resources Planning, Management and Impact of Climate Change” during April 5-6, 2013 at BITS-Pilani, Hyderabad campus.
- Member of the advisory committee of National Conference on “Sustainable Water Resources Development and Management”, SWARDAM-2016 during 4-5 July, 2016.
- Reviewer of several national and international journals.

## **15. Professional Memberships:**

### **International**

- Member of American Geophysical Union (AGU), USA
- Member of European Geosciences Union (EGU)
- Affiliate Member of American Society of Civil Engineers (ASCE), USA
- Member of Environmental & Water Resources Institute (EWRI), USA
- Member of International Association of Hydrological Sciences (IAHS), UK
- Member of Asia Oceania Geosciences Society (AOGS)
- Member of International Water Resources Association (IWRA), France
- Member of International Association for Hydro-Environment Engineering and Research (IAHR)
- Member of Asian Council of Science Editors (ACSE)

### **National**

- Indian Science Congress Association (ISCA), India (Life Member)
- Indian Society for Hydraulics (ISH), India (Life Member)
- Indian Society for Probability and Statistics (Life Member)
- Indian Meteorological Society (Life Member)
- Society of Young Agricultural and Hydrology Scholars of India (Member)

**Annexure –A: Details of Temporary Research Assistants and Bachelor Students for BTech Projects**

(Details PhD Students are in the main part of the CV)

**Temporary Research Students:**

1. **Mr. Sarit Kumar Das** – Senior Research Fellow from January 7, 2010 to August 6, 2010
2. **Mr. Sayan Dey** – Temporary Project Staff from August 01, 2013 to October 31, 2013
3. **Mr. Sayan Dey** – Junior Research Fellow from November 01, 2013 to June 30, 2014
4. **Ms. Riya Dutta** – Senior Research Fellow from March 03, 2015 to July 10, 2015
5. **Ms. Subhasmita Dash** – Junior Research Fellow from December 13, 2017 to July 10, 2018.
6. **Ms. Sunanda Narayana** – Temporary Project Staff from December 18, 2017 to May 06, 2018.
7. **Dr. Manali Pal** – Temporary Research Associate from July 30, 2018 to October 26, 2018
8. **Dr. Anindita Patra** – Temporary Research Associate from August 23, 2018 to November 19, 2018
9. **Dr. Mayank Suman** – Temporary Research Associate from January 04, 2021 to July 09, 2021.
10. **Dr. Riya Dutta** – Temporary Research Associate from January, 2022 to August, 2022.

**Masters Students (MTech and MS):****BTech Students:****Completed**

1. **Mr. Tapan Pandita (Completed in 2008)**
2. **Mr. Rahul Meena (Completed in 2008)**
3. **Mr. Katkar Sudhir Shivaji (Completed in 2008)**
4. **Mr. Ankit Surekha (Completed in 2011)**
5. **Mr. Ghanshyam Jeph (Completed in 2011)**
6. **Mr. Harish Kumar Singh (Completed in 2012)**
7. **Mr. Atul Choudhary (Completed in 2012)**

8. **Mr. Prerit Varun (Completed in 2013)**
9. **Mr. Sayan Dey (Completed in 2013)**
10. **Mr. Ankit Aggarwal (Completed in 2014)**
11. **Mr. Shivshankar Meena (Completed in 2014)**
12. **Mr. Abhinav Yashkar (Completed in 2014)**
13. **Mr. Saurav Suman (Completed in 2015)**
14. **Mr. Chakravaram Sai Krishna (Completed in 2016)**
15. **Mr. Vishal Babu (Completed in 2016)**
16. **Mr. Mayank Jindal (Completed in 2018)**
17. **Mr. P Jaswanth Reddy (Completed 2018)**
18. **Mr. Arpan Kumar Pallar (Completed in 2019)**
19. **Mr. Rahul Jain (Completed in 2020)**
20. **Mr. Venkata Surendra Mandala (Completed in 2021)**
21. **Mr. Aditya Yadav (Completed in 2022)**

**Internship (External students):**

1. **Ms. Somu Varshitha** – BTech Summer Internship from May 10, 2015 to June 30, 2015
2. **Ms. Shaik Shahinoor** – BTech Summer Internship from May 10, 2015 to July 07, 2015
3. **Ms. Soumi Mishra** - BTech Summer Internship from May 06, 2019 to June 30, 2019
4. **Mr. Ayush Sinha** - BTech Summer Internship from May 10, 2019 to June 30, 2019
5. **Ms. Amrita Bhattacharjee** - BTech Summer Internship from May 01, 2020 to July 31, 2020
6. **Ms. Debasmita Baidya** - BTech Summer Internship from June 01, 2022 to July 31, 2022

### **Annexure –B: Details of Projects**

Projects are grouped into three categories as follows:

- 1) Sponsor Projects,
- 2) Projects related to Online Course Development,
- 3) Consultancy Projects

Total amount: ~416 lakhs + foreign component, honorarium, service tax etc., if applicable

Total amount as PI: ~397 lakhs + foreign component, honorarium, service tax etc., if applicable

#### **1) Sponsor Projects**

Sl. No.	Title of the Project	Sponsor	Ref. No. and other details	PI/co-PI	Project Value (INR)	Status
1	Hydroclimatological characteristics of spatio-temporal rainfall distribution over India	Indian Institute of Technology Bombay, Mumbai, India	07IR020	PI: Dr. Rajib Maity Co-PI: Nil	5,00,000/-	<b>Completed</b>
2	Assessment of hydroclimatic teleconnection for basin-scale, real-time streamflow and its use in real-time streamflow forecasting	Fast Track Project for Young Scientists Scheme, Science and Engineering Research Council (SERC), Department of Science and Technology (DST), Govt. of India	SR/FTP/ETA-26/07 (IITKgp project code – RTS)	PI: Dr. Rajib Maity Co-PI: Nil	4,20,000/-	<b>Completed</b>  The project was graded as ‘ <b>Excellent</b> ’ by SERC, DST (Ref. No. SR/FTP/ ETA-26/2007 dated 9 <sup>th</sup> May 2014)
3	River basin stream flow simulation using remote sensing data	Space Application Centre (SAC), Indian Space Research Organization (ISRO), Ahmedabad	IIT/SRIC/CE/RSD/2009-2010 (IITKgp project code – RSD)	PI: Dr. Rajib Maity Co-PI: Nil	16,50,000/-	<b>Completed</b>
4	Managing change in Soil Moisture and Agricultural Productivity under a Global Warming scenario using a Catchment Scale Climate Change	Australia-India Strategic Research Funds (AISRF)	DST/INT/AU S/P-27/2009 (IITKgp project code – CAF)	<b>India</b> PI: Prof. D Nagesh Kumar Co-PI: Prof. V V Srinivas, IISc Co-PI: Dr. Rajib Maity, IIT Kgp <b>Australia</b>	INR 16,07,760/- + AUS \$208,500	<b>Completed</b>

Assessment Framework			PI: Prof. Ashish Sharma, UNSW, Sydney Co-PI: Dr. Raj Mehotra, UNSW, Sydney		
5 Smarter water resources management, Disaster Mitigation & Diabetic Retinopathy (WDD)	IBM India Private Limited	IIT/SRIC/WDD/2011-20112/165 (IITkgp project code – WDD)	PI: Prof. Dhrubajyoti Sen PI: Prof. Chandan Chakraborty Co-PI: Dr. Rajib Maity Co-PI: Prof. Mukunda Dev Behera Co-PI: Prof. Anirban Dhar Co-PI: Prof. Manabottam Mandal Co-PI: Prof. Pabitra Mitra Co-PI: Prof. Soumya Kanti Ghosh	17,60,000/-	<b>Completed</b>
6 Probabilistic simulation and future estimation of soil moisture distribution over India using Hydroclimatic data	ISIRD, SRIC, IIT Kharagpur	IIT/SRIC/ISIRD/2012-2013 (IITkgp project code – FSH)	PI: Dr. Rajib Maity Co-PI: Nil	5,00,000/-	<b>Completed</b>
7 Probabilistic estimation of soil moisture from RISAT1 data along with uncertainty quantification	Space Application Centre (SAC), Indian Space Research Organization (ISRO), Ahmedabad.	IIT/SRIC/CE/PMA/2013-14/5 (IITkgp project code – PMA)	PI: Dr. Rajib Maity Co-PI: Nil	21,91,000/-	<b>Completed</b>
8 Effect of Climate Change on local sea level rise and its Impact on Coastal Areas: Kolkata Region as a Pilot Study	Ministry of Human Resource Development (MHRD), Government of India.	F.No. 4-22/2014-TS.I, Dt 23-01-2014 (IITkgp Project code – ILC)	PI: Dr. Rajib Maity Co-PI: Dr. P K Bhaskaran, Dept. of Ocean Engg. Neval Architecture, IIT Kharagpur	35,74,000/- (part of a Mega-project worth total INR 25,90,36,000)	<b>Completed</b>
9 Modelling of Soil Moisture in a Changing Climate using the Potential of Probabilistic Hydrometeorological Approach	Ministry of Earth Science (MoES), DST	MoES/PAM C/H&C/30/2013-PC-II (IITkgp project code – MHA)	PI: Dr. Rajib Maity Co-PI: Nil	43,82,400/-	<b>Completed</b>



10	Exploration of vertical soil moisture profile by assimilating the surface soil moisture data retrieved from remotely sensed SAR data	Space Application Centre (SAC), Indian Space Research Organization (ISRO), Ahmedabad.	IIT/KCSTC/STC/Chair./A ppr./NEW/P/16-17/07	PI: Dr. Rajib Maity Co-PI: Nil	34,89,600/-	Completed
11	Assessment of Extreme Hydrological Events in a Changing Climate (EHC)	Department of Science and Technology, Climate Change Programme (SPLICE),	DST/CCP/CoE/79/2017(G), Dt. 30-03-2017	PI (along with 24 other PI/Co-PIs)	46,66,600/- (part of a Mega-project worth total INR 6,90,36,000)	Completed
12	Spatio-temporal drought characterization and its future trend in Iran in a changing climate	India-Iran inter-governmental programme of cooperation in science and technology, Department of Science & Technology (International Bilateral Co-operation Division)	INT/Iran/ JP-07/2018 dated September 12, 2018.	Indian PI (along with another Indian Co-PI and two Iranian PI/Co-PI)	INR 35,32,800/- + IRR 73,75,00,000/-	Completed
13	Improvement of temporal resolution (~weekly to daily) of Sentinel-1 based high spatial resolution surface soil moisture estimates	Space Application Centre (SAC), Indian Space Research Organization (ISRO), Ahmedabad.	IIT/KCSTC/Chair/NEW/P/19-20/09	PI: Dr. Rajib Maity Co-PI: Nil	34,00,000/-	Ongoing

## 2) Projects related to Web Course Development

Sl. No.	Title of the Project	Sponsor	Ref. No. and other details	Course Honorarium (INR)	Status
1	National Mission Project on Pedagogy Development for the course 'Water Resources Engineering'	Ministry of Human Resource Development (MHRD), Government of India	Project coordinated by Centre for Education Technology (CET), IIT Kharagpur (Worked as Principle Developer with another Co-Developer)	5,60,000/-	Completed
2	Development of a video course on 'Probability Methods in Civil Engineering' through National	Ministry of Human Resource Development (MHRD), Government of India	Project coordinated by Centre for Education Technology (CET), IIT Kharagpur (Worked as an Subject Matter Expert (SME); No co-SME)	4,00,000/-	Completed

	Programme on Technology Enhanced Learning (NPTEL-II)				
3	Development of a web course on ‘Probability Methods in Civil Engineering’ though National Programme on Technology Enhanced Learning (NPTEL-II)	Ministry of Human Resource Development (MHRD), Government of India	Project coordinated by Centre for Education Technology (CET), IIT Kharagpur (Working as an Subject Matter Expert (SME); No co-SME)	4,00,000/-	Completed
4	NPTEL Online Certification (NOC) Course on “Probability Methods in Civil Engineering”	Ministry of Human Resource Development (MHRD), Government of India	Project coordinated by Centre for Education Technology (CET), IIT Kharagpur (Working as an Subject Matter Expert (SME); No co-SME)	4,50,000/-	Completed
5	SWAYAM-NPTEL Online Certification program for the course “Surface Water Hydrology”	Ministry of Human Resource Development (MHRD), Government of India	National co-ordinator: Project coordinated by Centre for Education Technology (CET), IIT Kharagpur (Working as an Subject Matter Expert (SME); No co-SME)	4,50,000/-	Completed

### 3) Consultancy Projects

Sl. No.	Title of the Project	Client	Ref. No. and other details	PI/co-PI	Amount (INR)	Status
1	Expert’s Opinion on open channel ultrasonic flow meter.	City & Industrial Development Corporation (CIDCO) of Maharashtra Ltd., Mumbai	DRD/CE/TIE-2/07-08	PI: Prof. T.I Eldho Co-PI: Dr. Rajib Maity	96,000/-	Completed
2	Performance Evaluation Study in respect of Work Kapaleswari-Keliaghai-Baghai Drainage Basin Scheme (Phase-I, 2010-2011) Under Flood Management Programme, Government of India	Superintending Engineer, Western Circle-II, I&W Directorate, Dist. Paschim Mednipur, Govt. of West Bengal	IIT/SRIC/CE/2010-2011/105 (IITKgp project code – KKBD	PI: Dr. Rajib Maity Co-PI: Dr. A Dhar	9,70,640/-	Completed

3	Vetting the design of DNMC canal and associated hydraulic structures	Scott Wilson India Private Limited (SWIPL), A-26/4, Mohan Cooperative Industrial Estate, Mathura Road, New Delhi-110044	IIT/SRIC/CE/2011-2012/28 (IITKgp project code – CSTI)	PI: Dr. Rajib Maity Co-PI: Dr. K Deb Co-PI: Dr. N Mitra	26,47,200/-	<b>Completed</b>
4	Performance Evaluation Study in respect of Work - Keliaghat-Kapaleswari-Baghai Drainage Basin Scheme - (Phase-Ii, 2012-2013) under Flood Management Programme, GoI	Superintending Engineer, Western Circle-II, I&W Directorate, Dist. Paschim Mednipur, Govt. of West Bengal	IIT/SRIC/CE/REDS/2012-2013/44 (IITKgp project code – REDS)	PI: Dr. Rajib Maity Co-PI: Dr. A Dhar	22,47,200/-	<b>Completed</b>
5	Evaluation of Flood Management Scheme for Keliaghai-Kapaleswari-Baghai River Basin	Superintending Engineer, Western Circle-II, I&W Directorate, Dist. Paschim Mednipur, Govt. of West Bengal	IIT/SRIC/CE/FMKR/2015-15/04 (IITKgp project code – FMKR)	PI: Dr. Rajib Maity Co-PI: Dr. A Dhar	17,10,000/-	<b>Completed</b>

## **Annexure – C: Complete List of Publications**

(in reverse chronological order)

### **Summary:**

Books– 02

Refereed Journals – 83

Book Chapters – 14

Patent/Copyright - 01

Technical Reports – 07

Conferences and Symposia – 74

### **Book:**

1. **Maity R.**, (2022), Statistical Methods in Hydrology and Hydroclimatology, 2<sup>nd</sup> Edition, *Springer*, Copyright © 2022 Springer Nature Singapore Pte Ltd., pp. 436, ISBN: 978-981-16-5517-3 (e-Book) and 978-981-16-5516-6 (Hard Cover), <https://doi.org/10.1007/978-981-16-5517-3>.

#### **First Edition details:**

- Maity R.**, (2018), Statistical Methods in Hydrology and Hydroclimatology, *Springer*, Copyright © 2018 Springer Nature Singapore Pte Ltd., pp. 444, e-Book ISBN: 978-981-10-8779-0, Hardcover ISBN: 978-981-10-8778-3, <https://doi.org/10.1007/978-981-10-8779-0>.
2. **Maity R.**, and D. Nagesh Kumar, (2014), Hydroclimatic Teleconnection: Indian Perspective, *Scholar Press*, Copyright © 2014 OmniScriptum GmbH & Co. KG, Heinrich-Böcking-Str. 6-8, 66121, Saarbrücken, Germany, ISBN: 978-3-639-66387-7.

### **Book Chapters:**

1. Khan M.I., and **R. Maity**, (2022), Multi-step ahead forecasting of streamflow using Deep Learning based LSTM approach, In *Geospatial and Soft Computing Techniques*, Edited by P. V. Timbadiya, Prem Lal Patel, Vijay P. Singh, Ashwini B. Mirajkar, Springer Nature, Singapore, accepted.
2. Dutta R., and **R. Maity**, (2021), Temporal Networks: A new approach to model non-stationary hydroclimatic processes with a demonstration for soil moisture prediction, In *Geospatial and Soft Computing Techniques*, Edited by P. V. Timbadiya, Prem Lal Patel, Vijay P. Singh, Ashwini B. Mirajkar, Springer Nature, Singapore, accepted.

3. Khan M.I., S. Sarkar and **R. Maity** (2022), Artificial Intelligence/Machine Learning Techniques in Hydroclimatology: A Demonstration of Deep Learning for Future Assessment of Streamflow under Climate Change, In *Visualization Techniques for Climate Change with Machine Learning and Artificial Intelligence*, (ISBN: 978-0-323-99714-0) Edited by A.L. Srivastav, Elsevier, Chapter 12, pp. 247-273, doi: <https://doi.org/10.1016/B978-0-323-99714-0.00015-7>.
4. Srivastava A., S. Jain, **R. Maity** and V. R. Desai (2022), Demystifying Artificial Intelligence amidst Sustainable Agricultural Water Management. In *Water Resource Modeling and Computational Technologies*. Edited by Zakwan M., Wahid A., Niazkar M., Chatterjee U., Current Directions in Water Scarcity Book Series, Elsevier, Vol 7, 17-35, doi: <https://doi.org/10.1016/B978-0-323-91910-4.00002-9>.
5. Srivastava A., **R. Maity** and V. R. Desai (2022), Assessing Global-scale Synergy between Adaptation, Mitigation and Sustainable Development for projected Climate Change. In *Ecological Footprints of Climate Change: Adaptive Approaches and Sustainability*. (ISBN: ISBN: 978-3-031-15500-0), Edited by Chatterjee U., Akanwa A., Kumar S., Singh S.K., Roy A.D, Springer Climate Book Series, Springer, accepted.
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