# Dr. Riya Dutta

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**ResearchGate Profile: https://www.researchgate.net/profile/Riya-Dutta**

**Google Scholar link: https://scholar.google.com/citations?user=1psrT9oAAAAJ&hl=en&authuser=1**

1. **Research Interests:** Climate change impact assessments, Hydroclimatology, Stochastic Hydrology and Analysis of Hydrologic Extremes.

## 2. Educational background

| *Degree* | *Institute* | *Department* | *Year of Completion* | *Thesis Title* |
|---|---|---|---|---|
| **B-Tech** | NIT Durgapur | Civil Dept. | 2012 | |
| **MS by Research** | IIT Kharagpur | Civil Dept. | 2018 | Potential of Graphical Modelling Approach in Multivariate Hydroclimatic Applications: Analysis and Forecasting. |
| **PhD** | IIT Kharagpur | Civil Dept. | 2022 | Hydroclimatic modelling of non-stationary processes in a changing climate through the concept of time-varying framework. |

## 3. Academic Work Experience

| *Position* | *Institute* | *Department* | *Time Period* |
|---|---|---|---|
| **Research Fellow** | IIT Kharagpur | Civil Engineering Department | May 2022 - Aug 2022 |
| **Scientific Researcher** | Czech University of Life Sciences, Prague | Dept. of Water Resources and Environmental Modelling | Oct 2022 - April 2023 |
| **Assistant Professor** | IIT (ISM) Dhanbad | Dept. of Environmental Science and Engineering | May 2023 - Till Date |

## 4. Publications

- *Book Chapters*

1. **Dutta R.**, and Maity, R, (2021), Benefit of time-varying models developed using graphical modeling approach for probabilistic prediction of monthly streamflow, In *Climate Change Impacts on Water Resources*, Edited by R. Jha, V.P. Singh, V. Singh, L.B. Roy and R. Thendiyath, Springer Nature, Switzerland.
2. **Dutta R.**, and Maity, R, (2022), 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.

3. **Dutta, R.,** Maity, R., & Markonis, Y. (2023), Direct and Indirect Coupling of Evapotranspiration with Energy Fluxes over the Indian Subcontinent

- *Peer-Reviewed Journals*

1. **Dutta, R.,** & Maity, R. (2018). Temporal evolution of hydroclimatic teleconnection and a time-varying model for long-lead prediction of Indian summer monsoon rainfall. *Scientific Reports*, Nature Publishing Group, 8(1), 10778. https://doi.org/10.1038/s41598-018-28972-z

2. **Dutta, R.,** & Maity, R. (2020). Identification of potential causal variables for statistical downscaling models: effectiveness of graphical modeling approach. *Theoretical and Applied Climatology*, Springer, 142(3–4), 1255–1269. https://doi.org/10.1007/s00704-020-03372-4

3. **Dutta, R.,** & Maity, R. (2020). Spatial variation in long-lead predictability of summer monsoon rainfall using a time-varying model and global climatic indices. *International Journal of Climatology*, Royal Meteorological Society (RMetS), 40(14), 5925–5940. https://doi.org/10.1002/joc.6556

4. **Dutta, R.,** & Maity, R. (2020). Temporal Networks-Based Approach for Nonstationary Hydroclimatic Modeling and its Demonstration With Streamflow Prediction. *Water Resources Research*, American Geophysical Union (AGU), 56(8), 1–21. https://doi.org/10.1029/2020WR027086

5. Maity, R., Chanda, K., **Dutta, R.,** Ratnam, J. V., Nonaka, M., & Behera, S. (2020). Contrasting features of hydroclimatic teleconnections and the predictability of seasonal rainfall over east and west Japan. *Meteorological Applications*, Royal Meteorological Society (RMetS), 27(1), 1–20. https://doi.org/10.1002/met.1881

6. **Dutta, R.,** Sunanda, N., Patra, A., & Maity, R. (2021). Long-term simulation of daily rainfall across India: Performance of cumulus convection schemes in regional climate model during southwest and northeast monsoon. *Atmospheric Research*, Elsevier, 259(May), 105675. https://doi.org/10.1016/j.atmosres.2021.105675

7. Maity, R., Khan, M. I., Sarkar, S., **Dutta, R.,** Maity, S. S., Pal, M., & Chanda, K. (2021). Potential of Deep Learning in drought assessment by extracting information from hydrometeorological precursors. *Journal of Water and Climate Change*, IWA Publishing, 12 (6): 2774–2796. https://doi.org/10.2166/wcc.2021.062

8. **Dutta, R.,** & Maity, R. (2021). A time-varying network-based approach for capturing hydrological extremes under climate change with application on drought, *Journal of Hydrology*, Elsevier, 603, 126958. https://doi.org/10.1016/j.jhydrol.2021.126958

9. **Dutta, R.,** Maity, R. & Patel, P. (2022), Short and Medium Range Forecast of Soil Moisture for the Different Climatic Regions of India Using Temporal Networks, *Water Resource Management*, Springer, 36, 235-251, https://doi.org/10.1007/s11269-021-03025-9

10. **Dutta, R.,** Chanda, K., and Maity, R., (2022), Future potential of solar energy resources across the globe using CMIP6 projections, *Renewable Energy*, Elsevier, 188, 819-829, https://doi.org/10.1016/j.renene.2022.02.023

11. **Dutta, R.,** and Maity, R, (2022), Value addition in coupled model intercomparison project phase 6 over phase 5: global perspectives of precipitation, temperature and soil moisture fields, *Acta Geophysica*, Springer. 10.1007/s11600-022-00793-9

12. Vargas Godoy, M.R., Markonis, Y., Rakovec, O., Jenicek, M., **Dutta, R.**, Pradhan, R.K., Bešťáková, Z., Kyselý, J., Juras, R., Papalexiou, S.M. and Hanel, M., (2023), Water Cycle Acceleration in Czechia: A Water Budget Approach. *Hydrology and Earth System Sciences*, pp.1-31.

13. **Dutta, R.,** & Markonis, Y. (2024). Does ERA5-land capture the changes in the terrestrial hydrological cycle across the globe? *Environmental Research Letters*, *19*(2), 024054. 10.1088/1748-9326/ad1d3a

14. Dalal, G., Chaudhary, S., **Dutta, R.**, Karmakar, S., Koppa, A. and Hari, V., 2024. East–West asymmetry in intensity, duration, frequency of heatwaves over Northern India. *Environmental Research Letters*, *19*(12), p.124089. 10.1088/1748-9326/ad948f

## 5. Projects

- *Research Projects (Ongoing)*

FRS (awarded in January 2024) – Project no. FRS(208)/2023-2024/ESE (Amount: INR 20 lakhs, duration: 2 years)

- *Consultancy Projects (Ongoing)*

Project name: Preparation and Eco-restoration and Conservation Plan of Pakri Barwadih North West Coal Mining Project funded by NTPC; Project number: CONS/T052/2023-24; Project amount: INR 29 lakhs.

## 6. Research Guidance

- 6 PhDs/part-time PhD ongoing as supervisor (4 scholars) and co-supervisor (2 scholars)
- 5 M.Tech Supervision Ongoing

## 7. Personal details:

- Date of Birth: September 10, 1989.
- Place of Birth: Jharkhand, India
- Nationality: Indian
- Category: General
- Marital Status: Married