

## Dr. Dhanya C. T.



Dr. Dhanya C.T. is presently working as an Assistant Professor in Department of Civil Engineering, Indian Institute of Technology (IIT) Delhi, New Delhi, India. After completing her B.Tech in Civil Engineering from College of Engineering Trivandrum, University of Kerala with double Gold Medals and M.Tech in Hydraulics and Water Resources Engineering from Indian Institute of Technology (IIT) Madras, she joined Indian Institute of Science, Bangalore to pursue her research in hydro-climatology. She was awarded Prof. N.S.Govinda Rao Gold Medal for the Best Ph.D Thesis

in the Department of Civil Engineering at Indian Institute of Science (IISc), Bangalore for her doctoral research.

Dr. Dhanya's research attempts to generate fundamental scientific understanding of the hydrological extremes along with improvising the hydrological modeling, to provide early-warning methods and adaptation policies for sustainable water resources management. While confronting this from different angles, her primary focus was to reveal the nonlinear physical linkages between global climatic causative factors and extreme episodes. Lack of holistic knowledge about system components while dealing with such complex hydro-climatic systems steered her to hypothesize that “A well-observed time-series does speak for itself!” She developed novel algorithms to reduce predictive uncertainty by minimising the infamous butterfly-effect and improving the model perfection. Focussed to drive “Hydrological Modelling towards Perfection, Dr. Dhanya has explored the role and extent of heterogeneity in Regional Hydrological Modelling (RHM). Her recent fundamental scientific contribution on predictability has reinforced the scope of improving regional hydrological predictions by merely trading-off temporal resolution by 3-5 days; with no compromise needed on spatial resolution. Subsequently, her study addressed the fundamental question” “How much heterogeneity (spatial and temporal) need to be considered in hydrological modeling for better predictability?”. The aspects of heterogeneity highlighted benefit in better representation of various hydrological processes at different scales.

To fortify the hydro-climatic field and to overcome two major assumptions/limitations suffered by the past impact assessment studies i.e., relationship stationarity in future and inferior simulation of extremes, she also developed innovative “dynamically natured algorithms” and these statistical downscaling algorithms are planned to be deployed in the Ministry of Water Resources National Water Mission initiative. She has also formulated a unique comprehensive single index to rank the climate models which helps to



significantly reduce the uncertainties in future projections. Her recent research has also highlighted the extent of hydrological model uncertainty in climate change impact assessment studies, which has been ignored by the past studies.

Dr. Dhanya has published more than twenty five research articles in international and national peer reviewed journals having high impact factors. She is the recipient of numerous awards such as “IEI Young Engineers Award 2016-2017 in Civil Engineering Discipline”, Young Associate of Indian Academy of Sciences (IASc) and Outstanding Reviewer Award, ASCE. She is also the recipient of DAAD Faculty Exchange scholarship to serve as a visiting faculty in ForschungszentrumJulich, Germany.

In recognition to her outstanding research contributions in the field of Earth System Science the Ministry of Earth Sciences honours Dr. Dhanya C.T. with the “Young Researcher Award in the field of Earth System Science” for the year 2017.