

December 2021

Publications

Agarwal, A, Guntu, R.K, Banerjee, A., **Gadhawe, M,** and Marwan, N. A complex network approach to study the extreme precipitation patterns in a river basin. *Chaos (Accepted)*

Agarwal, A.; Yuan, N.; Cheung, K.K.W.; Shukla, R. Emerging Hydro-Climatic Patterns, Teleconnections, and Extreme Events in Changing World at Different Timescales. *Atmosphere* **2022**, *13*, 56. <https://doi.org/10.3390/atmos13010056>

Anuradha Garg, Brijesh K. Yadav, Diganta B. Das, Paul J. Wood, Improving the assessment of polluted sites using an integrated bio-physicochemical monitoring framework, *Chemosphere*, Volume 290, 2022, 133344, <https://doi.org/10.1016/j.chemosphere.2021.133344> (Q1, IF = 7.086)

Yadav, A., Sen, S., Mao, L., Schwanghart, W. Evaluation of flow resistance equations for high gradient rivers using the geometric standard deviation of bed material, *Journal of Hydrology*, 605, 127292, doi.org/10.1016/j.jhydrol.2021.127292. 2022.

Meena, R. K., **Sen, S.,** Nanda, A., Dass, B., and Mishra, A. Innovatory rainfall simulator design – A concept of moving storm automation, *Hydrol. Earth Syst. Sci. Discuss.* [preprint], <https://doi.org/10.5194/hess-2021-502>, 2021.

Parmar, S, Kharwar, R, Singh, V., Sharma V J, **Yadav, B K** (2021) “Role of vermiculite on potentially toxic elements stabilization in the rhizospheric zone of maize” *Communications in Soil Science and Plant Analysis* (IF=1.327) (Accepted)

Wong, P. W., Yim, V. M. W., Guo, J., Chan, B. S., **Deka, B. J.*,** An, A. K.* (2021). Non-invasive Real-time Monitoring of Wetting Progression in Membrane Distillation Using Impedance Spectroscopy. *Environmental Science and Technology*, <https://doi.org/10.1021/acs.est.1c04433> (Q1, Impact factor: 9.028)

Kumar, J.; Joshi, H.; Malyan, S.K. Removal of Copper, Nickel, and Zinc Ions from an Aqueous Solution through Electrochemical and Nanofiltration Membrane Processes. *Appl. Sci.* 2022, *12*, 280. <https://doi.org/10.3390/app12010280>

Aghilesh K, **Ajay Kumar,** Smriti Agarwal, Manoj Chandra Garg & **Himanshu Joshi** (2021): Use of artificial intelligence for optimizing biosorption of textile wastewater using agricultural waste, *Environmental Technology*, DOI: 10.1080/09593330.2021.1961874.

Tarun Pant., **Abinesh Ganapathy., Ankit Agarwal.** 2021. Investigating Streamflow Variability and Hydroclimatic Teleconnections: A comparison of regulated and unregulated streamflow stations. *Journal of Water and Climate Change*. JWC-D-21-00369R1. (accepted)

Harshita Jain, **Ajay Kumar,** Vishnu D. Rajput, Tatiana Minkina, Anoop Kumar Verma, Shikha Wadhwa, Renu Dhupper, Manoj Chandra Garg, **Himanshu Joshi** (2022): Fabrication and characterization of high-performance forward-osmosis membrane by introducing manganese oxide incited graphene quantum dots, *Journal of Environmental Management*, <https://doi.org/10.1016/j.jenvman.2021.114335>.

International Conferences

Srivastava, P., Sen, S. Simulation of Extreme Rainfall Events over Indian Himalayan Region using WRFv4 model. AGU Fall Meeting 2021, 16th Dec. 2021

Yadav, A., Sen, S. Flow Resistance in High Gradient Rivers using the Shannon Entropy. AGU Fall Meeting 2021, 17th Dec. 2021.

Shah, S., Sen, S. Exploring the Hydro-ecological State of Himalayan Lakes: A Review. AGU Fall Meeting 2021, 17th Dec. 2021

Guntu, R.K, and Agarwal, A.; Disentangling increasing compound extremes at regional scale during Indian Summer Monsoon. AGU 2021 Fall Meeting. <https://doi.org/10.1002/essoar.10508931.2>

Guntu, R.K, and Agarwal, A.; Assessment of compound dry and hot extremes over India using a copula-based multivariate standardized index. AGU 2021 Fall Meeting. <https://doi.org/10.1002/essoar.10508932.2>

Yunnam, K., Guntu, R.K., Agarwal, A., and Maheswaran, R.; Quantile-based Bayesian Model Averaging approach towards merging of rainfall products. AGU 2021 Fall Meeting. <https://doi.org/10.1002/essoar.10509240.1>

Gadhawe, M., Guntu, R.K, Banerjee, A., Marwan, N., and **Agarwal, A.;** A complex network approach to study the extreme precipitation patterns in a river basin. AGU 2021 Fall Meeting. <https://doi.org/10.1002/essoar.10509273.2>

Moushumi Hazra, Nidhi Joshi, Himanshu Joshi (2021): Antibiotic-Resistant Genes and Integrons: A potential threat to the Ganga River ecosystem, India. IWRA's XVII World Water Congress, EXCO, Daegu, Republic of Korea, Nov. 29-Dec 3, 2021.

Jagdeesh Kumar and Himanshu Joshi (2021): Removal of Heavy metal Ions from a Multi-Metal Solution by Innovative Electrochemical and membrane Processes. Paper ID: IMRSE_2021_256, International Conference on Materials, Reliability, safety, and Environmental issues -2021 (IMRSE-2021), DR. B.R.Ambedkar National Institute of Technology Jalandhar, Punjab, India, June 25-27, 2021.

Jagdeesh Kumar, Himanshu Joshi (2021): Exploring removal of heavy metal ions from wastewater stream employing electrocoagulation and nanofiltration processes," IWRA Online Conference "One Water, One Health: Water, Food and Public Health in a Changing World", Madrid, Spain, June 7-9 June 2021

Abinesh Ganapathy., Ravikumar Guntu., Ugur Ozturk., Bruno Merz., Ankit Agarwal. 2021. Unraveling the multiscale relationship between German streamflow and global SST using climate networks. NG52A: Scales, Scaling, Symmetries, and Complexity: From Theory to Big Data, from Urban Systems to Climate and Pandemics I Oral. AGU 2021 (17.12.2021). <https://doi.org/10.1002/essoar.10508881.1>

Shivam Rawat, Abinesh Ganapathy, Ravi Kumar Guntu, Ankit Agarwal (2021). Drought Characterization using GRACE-based drought index over Indian sub-continent | poster. AGU 2021 (13.12.2021) <https://doi.org/10.1002/essoar.10509305.1>

Ashish Manoj J, Ravi Kumar Guntu, Ankit Agarwal: *Understanding Soil Moisture – Precipitation (SM-P) Coupling over India from a Compound Flood Risk Assessment Perspective* <https://doi.org/10.1002/essoar.10508965.1>

Ashish Manoj J, Ravi Kumar Guntu, Ankit Agarwal: *Can Soil Moisture Anomalies Trigger Extreme Precipitation Events over India?* <https://doi.org/10.1002/essoar.10509317.1>
Best Regards

Book Chapter

Mike Bowes, Rajiv Sinha, **Himanshu Joshi** & Daniel Read (2021): River Water Quality Monitoring, in Sarkar S & Dixon H (eds). *Emerging Science for Sustainable Water Resource Management: A Guide for Water Professionals and Practitioners in India*. UKCEH Wallingford, 94 pp.

Invited Talks/Presentations:

Sumit Sen gave invited lectures on "**Fundamentals of Springshed Management: Water security through science-based participatory approach**" for the Himalayan Institute Hospital Trust (HIHT), Key Resource Centre (KRC). Under online training program on **Long-term sustainability, security, recharge, and management of drinking water sources**, 5th October & 15th December 2021

Sumit Sen gave an invited talk on "**Terrestrial Water Budget: The Himalayan Region**" during a workshop on **Himalayan Biosphere-Atmosphere-Hydrosphere Interactions: Status, Challenges, and Way Forward** under National Mission on Himalayan Studies (NMHS), MoEFCC, GoI Date: December 14, 2021

Prof. Brijesh K Yadav delivered a talk (Key Speaker) on "**Remediation of Polluted Groundwater Sites using Engineered Bioremediation and PRB Techniques**" during one day webinar on "Groundwater Contamination and Modelling Approaches, GCMA-2021" conducted by the Department of Mathematics & Computing, IIT (ISM) Dhanbad on Dec 23, 2021

Prof. Brijesh K Yadav delivered a talk on "**Groundwater Contamination and Engineered Bioremediation of Polluted Sites**" during 5- Days Online Training Course on Water Quality Assessment and Management December held by NIH Roorkee on Dec 06-10, 2021

Prof. Brijesh K Yadav delivered a talk in a webinar on the eve of National Pollution Control Day "**Scientific and Technological Research for Pollution Prevention & Control**" from 03 December 2021 organized by Amity Institute of Environmental Sciences, Amity University Uttar Pradesh.

Projects

Lidar-based non-contact hydrometry on mountainous terrain (2020-2021). Sponsor World Meteorological Organization, HydroHub program. Co-PIs: University of Birmingham, Imperial College London, Riverlabs, UK, Centre Water Commission (CWC) India.

Early warning system to improve adaptive capabilities & resilience of vulnerable mountain communities to extreme rainfall & flooding (2021-2022). Sponsor UKRI- COP26 program. PI: the University of Birmingham, Co-PI: Imperial College London, Riverlabs, UK, People Science Institute (PSI), India

Awards and Achievements

Ms. Anuradha Garg has received a scholarship to participate in IGCS winter school 2022 co-organized by the University of Stuttgart and IIT Madras on 'Sustainable Waste Management for a circular economy from 21 February - 4 March 2022.

Abinesh Ganapathy was provisionally selected for the prestigious **Commonwealth Split-site Scholarship (Ph.D.)** to continue his research at the University of Birmingham in collaboration with Prof David Hannah (Feb 2022 - Jan 2023).

Workshops

SuWaRec: Securing sustainable treatment for drinking water production and water recycling with a focus on anionic contaminants”, Role: as PI, Funding agency: Indo-German Science and Technology Centre (IGSTC), Status: Technically approved

Miscellaneous

Prof. Brijesh K Yadav has represented IIT Roorkee as an expert committee member for a joint inspection work related to a matter of honorable NGT for investigating the impact of mining on Wildlife Sanctuary (Bassi) Chittorgarh District, Rajasthan

Prof. Ankit Agarwal is serving as a Guest Editor for a collection titled “Emerging Talents in Water Science” for Water and Built Environment 2021/22 published by Frontiers Journal.

<https://www.frontiersin.org/research-topics/29913/emerging-talents-in-water-science-water-and-built-environment-202122>

Prof. Himanshu Joshi attended academic council and Executive council meetings in 2021 as IITR representative for Director, IITR (June, July, November), Dr. APJ Abdul Kalam Technical University (AKTU), Lucknow

Prof. Himanshu Joshi Expert member, Research Degree Committee (Civil/Environmental Engg), Dr. APJ Abdul Kalam Technical University (AKTU), Lucknow.