

DR. VITTAL H

Full publication list along with the articles which are under review

Peer-reviewed papers, book chapters and conference proceedings:

Book Chapters:

1. **Vittal, H.**, & Karmakar, S. (2019). A comprehensive social vulnerability analysis at a national scale. *Climate change signals and response*, 163-176
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Peer-reviewed articles

1. Zhang, W., **Vittal, H.**, Wang, S., LaPlante, M. D., Grafin, G., Affram, G., & Kumar, R. (2022). Fewer troughs, not more ridges, have led to a drying trend in the western United States. *Geophysical Research Letters*, doi: <https://doi.org/10.1029/2021GL097089> (Highlighted in **Science** ; doi: <https://doi.org/10.1126/science.acz9984>)
2. Zhang, W., Luo, M., Gao, Si, Chen, W., **Vittal, H.**, & Khouakhi, A. (2021). Compound hydrometeorological extremes: drivers, mechanisms and methods. *Frontiers in Earth Science*, 9, 941, doi: <https://doi.org/10.3389/feart.2021.673495>
3. **Vittal, H.**, Dharmasthala, S., Koppa, A., Karmakar, S., & Kumar, R. (2021). Climate hazards are threatening vulnerable migrants in Indian megacities. *Nature Climate Change*, 11 (8), 636-638
4. Malakar, K., Mishra, T., **Vittal, H.**, & Karmakar, S. (2021). District-level risk mapping for the Indian coastline following the IPCC-AR5 framework: A multi-attribute decision-making approach for coastal zone management. *Journal of Environmental Management*, 294, 112948, doi:<https://doi.org/10.1016/j.jenvman.2021.112948>
5. **Vittal, H.**, Pathak, A.,& Koppa, A. (2020). Dual response of Arabian Sea cyclones and strength of Indian monsoon to Southern Atlantic Ocean. *Climate Dynamics*, 1-13, doi:<https://doi.org/10.1007/s00382-020-05577-9>
6. **Vittal, H.**, Villarini, G., Karmakar, S., Wilcox, L. J.,& Collins, M. (2020). Northward propagation of the Intertropical Convergence Zone and strengthening of Indian summer monsoon rainfall. *Geophysical Research Letters*, 47(23), e2020GL089823
7. **Vittal, H.**, Rakovec, O., Markonis, Y., Hanel, M.,& Kumar, R. (2020). Increased future occurrences of the exceptional 2018–2019 Central European drought under global warming. *Scientific reports*, 10(1), 1-10, doi:<https://doi.org/10.1038/s41598-020-68872-9>
8. **Vittal, H.**, Karmakar, S., Ghosh, S.,& Murtugudde, R. (2020). A comprehensive India-wide social vulnerability analysis: highlighting its influence on hydro-climatic risk. *Environmental Research Letters*, 15(1), 014005, doi:<https://doi.org/10.1088/1748-9326/ab6499>
9. **Vittal, H.**,Villarini, G.,& Zhang, W. (2020). Early prediction of the Indian summer monsoon rainfall by the Atlantic Meridional Mode. *Climate Dynamics*, 54(3), 2337-2346
10. **Vittal, H.**,Villarini, G.,& Zhang, W. (2020). On the role of the atlantic ocean in exacerbating Indian heat waves. *Climate Dynamics*, 54(3), 1887-1896

11. **Vittal, H.**, Villarini, G., & Zhang, W. (2020). Fidelity of global climate models in representing the horizontal water vapour transport. *International Journal of Climatology*, 40(13), 5714-5726
12. Sharma, T., **Vittal, H.**, Karmakar, S., & Ghosh, S. (2020). Increasing agricultural risk to hydro-climatic extremes in India. *Environmental Research Letters*, 15(3), 034010, doi:<https://doi.org/10.1088/1748-9326/ab63e1>
13. Mohanty, M. P., **Vittal, H.**, Yadav, V., Ghosh, S., Rao, G. S., & Karmakar, S. (2020). A new bivariate risk classifier for flood management considering hazard and socio-economic dimensions. *Journal of environmental management*, 255, 109733.
14. Tripathy, S. S., **Vittal, H.**, Karmakar, S., & Ghosh, S. (2020). Flood risk forecasting at weather to medium range incorporating weather model, topography, socio-economic information and land use exposure. *Advances in Water Resources*, 146, 103785
15. Sudharsan, N., Karmakar, S., Fowler, H. J., & **Vittal, H.** (2020). Large-scale dynamics have greater role than thermodynamics in driving precipitation extremes over India. *Climate Dynamics*, 55(9), 2603-2614
16. Zhang, W., **Vittal, H.**, & Villarini, G. (2019). Potential impacts of anthropogenic forcing on the frequency of tropical depressions in the North Indian Ocean in 2018. *Journal of Marine Science and Engineering*, 7(12), 436
17. Gusain, A., **Vittal, H.**, Kulkarni, S., Ghosh, S., & Karmakar, S. (2019). Role of vertical velocity in improving finer scale statistical downscaling for projection of extreme precipitation. *Theoretical and Applied Climatology*, 137(1), 791-804.
18. Shashikanth, K., Ghosh, S., **Vittal, H.**, & Karmakar, S. (2018). Future projections of Indian summer monsoon rainfall extremes over India with statistical downscaling and its consistency with observed characteristics. *Climate Dynamics*, 51(1), 1-15
19. Sharma, T., **Vittal, H.**, Chhabra, S., Salvi, K., Ghosh, S., & Karmakar, S. (2018). Understanding the cascade of GCM and downscaling uncertainties in hydro-climatic projections over India. *International Journal of Climatology*, 38, e178-e190
20. Singh, S., Ghosh, S., Sahana, A. S., **Vittal, H.**, & Karmakar, S. (2017). Do dynamic regional models add value to the global model projections of Indian monsoon?. *Climate dynamics*, 48(3), 1375-1397
21. Singh, J., **Vittal, H.**, Karmakar, S., Ghosh, S., & Niyogi, D. (2016). Urbanization causes nonstationarity in Indian summer monsoon rainfall extremes. *Geophysical Research Letters*, 43(21), 11-269
22. **Vittal, H.**, Ghosh, S., Karmakar, S., Pathak, A., & Murtugudde, R. (2016). Lack of dependence of Indian summer monsoon rainfall extremes on temperature: an observational evidence. *Scientific reports*, 6(1), 1-12
23. Ghosh, S., **Vittal, H.**, Sharma, T., Karmakar, S., Kasiviswanathan, K. S., Dhanesh, Y., K. P. Sudheer, & Gunthe, S. S. (2016). Indian summer monsoon rainfall: implications of contrasting trends in the spatial variability of means and extremes. *PloS one*, 11(7), e0158670
24. **Vittal, H.**, Singh, J., Kumar, P., & Karmakar, S. (2015). A framework for multivariate data-based at-site flood frequency analysis: Essentiality of the conjugal application of parametric and nonparametric approaches. *Journal of Hydrology*, 525, 658-675

25. Singh, J., **Vittal, H.**, Singh, T., Karmakar, S., & Ghosh, S. (2015). A framework for investigating the diagnostic trend in stationary and nonstationary flood frequency analyses under changing climate. *Journal of Climate Change*, 1(1, 2), 47-65
26. **Vittal, H.**, Karmakar, S., & Ghosh, S. (2013). Diametric changes in trends and patterns of extreme rainfall over India from pre-1950 to post-1950. *Geophysical Research Letters*, 40(12), 3253-3258
27. Manu, B., Mahamood, S., **Vittal, H.**, & Shrihari, S. (2011). A novel catalytic route to degrade paracetamol by Fenton process. *International Journal of Research in Chemistry and Environment*, 1, 157

Details of Research Publications presented in Conferences:

1. **Vittal, H.**, Rakovec O., Hanel M., Markonis Y., Kumar R. Potential impacts of anthropogenic forcing on the consecutive 2018–19 droughts in the central Europe. EGU General Assembly, Virtual, 2020
2. Rakovec O., **Vittal, H.**, Markonis Y., Luis S., Hanel M., Stephan S., Maca P., Kumar R. The 2018–2019 European drought sets a new benchmark over 250 years. EGU General Assembly, Virtual, 2020
3. Singh J., **Vittal H.**, Sharma T., Karmakar S., Ghosh S. Signature of nonstationary in precipitation extremes over urbanizing regions in India identified through a multivariate frequency analysis, EGU General Assembly, Vienna, Austria, 2016
4. **Vittal H.**, Karmakar S., Ghosh S. Mapping decadal spatio-temporal variation of social vulnerability to hydro-climatic extremes over India, AGU Fall meeting, San Francisco, USA, 2015
5. **Vittal H.**, Singh J., Karmakar S., Ghosh S. Dependence of precipitation extremes on temperature over united states, AGU Fall meeting, San Francisco, USA, 2014
6. Singh J., **Vittal H.**, Karmakar S., Ghosh S. Evidences of significant nonstationarity in precipitation extremes over urbanizing areas in India, AGU Fall meeting, San Francisco, USA, 2014
7. Sen S., **Vittal H.**, Singh T., Singh J., Karmakar S. At-sight design rainfall estimation with diagnostic check for nonstationarity: an application to Mumbai rainfall datasets, Hydro, Chennai, 2013
8. **Vittal H.**, Karmakar S., Ghosh S. Detection of spatio-temporal variatio of rainfall and temperature extremes over India, GU Fall meeting, San Francisco, USA, 2012