EXPLORING THE INFLUENCE OF WEATHER ELEMENTS ON KOYNA RIVER MEANDERING USING REMOTE SENSING (RS) AND GEOGRAPHIC INFORMATION SYSTEM (GIS)

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Weather elements and their impact on river meandering and ultimately on the surrounding river regime area brings notable changes to the riverine ecosystem. This study aims to utilize Geographic Information System (GIS) and Remote Sensing (RS) methods to examine how weather elements affect the Koyna River's meandering behaviour. River route variations are influenced by land cover changes, particularly deforestation and agricultural development, and are correlated with increased precipitation and temperature deviations, accelerated river migration, and channel widening. The study finds notable connections between climate parameters and river geomorphology through multi-temporal analysis of satellite images and integration with climate data, including precipitation, humidity and temperature over last decade from year 2012 to 2022. The results show how closely climate variables and waterways interact, with implications for managing water resources, planning land uses, and preserving natural systems. This combined use of RS and GIS highlights the need for more study to improve the knowledge and simulation of these constantly changing environmental events and offers practical suggestions for managing the riverine ecosystems effectively.

 ISBN: - 978-81-968898-2-1