

ASSESSING THE IMPACT OF CLIMATE CHANGE ON RAINFALL TRENDS IN THE MIDDLE GUJARAT REGION

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ABSTRACT

This research paper delves into the intricate relationship between climate change and rainfall trends in the Middle Gujarat region, situated in the Indian subcontinent. The study employs a multidisciplinary approach, integrating meteorological data, satellite imagery, and climate modelling to comprehensively analyse observed changes and potential implications. Building upon earlier research, the paper explores key parameters such as mean annual rainfall, variance, coefficient of variation, kurtosis, skewness, median, standard deviation, and trend analyses. The findings reveal diverse responses across talukas, emphasizing the dynamic nature of precipitation patterns. While some areas exhibit no overall trend in annual rainfall, significant increasing trends in 3 and 5 years moving averages suggest a shifting pattern over time. The varying coefficients of variation underscore distinct levels of rainfall variability, necessitating localized and nuanced approaches for climate change mitigation and adaptation. The identification of talukas with decreasing trends highlights vulnerable areas, emphasizing the urgency for adaptive strategies in water resource management and agriculture. This research aims to inform policymakers, researchers, and local communities, fostering a better understanding of the complex interplay between climate change and rainfall patterns in the Middle Gujarat region.

KEYWORDS: *Rainfall Analysis, Mann-Kendall, Sen. 's Slope Method*