Review Form 3

Journal Name:	**International Journal of Environment and Climate Change**
Manuscript Number:	**Ms_IJECC_125177**
Title of the Manuscript:	**Establishing Climate change on Rainfall Trend, Variation and Change Point Pattern in Umuahia, Nigeria.**
Type of the Article	**Research article**

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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	The research provides valuable insights into the increasing rainfall trends in Umuahia, highlighting the statistical significance of the changes across multiple durations. By identifying 2002 as a key change-point in rainfall patterns, the study emphasizes the need for non-stationary IDF modeling, which enhances the accuracy of flood risk assessment and urban planning. The use of advanced statistical tests, such as MK, SSE, and CUSUM, strengthens the reliability of the findings for managing climate-related risks.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	Yes	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	**The abstract is quite comprehensive, providing a clear overview of the study's objectives, methods, key findings, and implications. However, there are a few improvements that could enhance its clarity and focus:** **1. Highlight Study's Importance:** The abstract could benefit from emphasizing the broader significance of the findings, such as their relevance to regional climate adaptation strategies or global climate change discussions. **2. Condense the Statistical Details:** The inclusion of specific Sen's Slope values for each duration is valuable but could be slightly condensed to focus more on the overall findings (e.g., highlighting the significant increasing trend rather than listing each specific slope value).	
Are subsections and structure of the manuscript appropriate?	The proposed structure is appropriate and includes all the necessary subsections to support the study's objectives. However, ensuring that each subsection is well-developed with clear explanations of the methodologies and a strong link between the results and practical implications will enhance the manuscript's overall clarity and impact.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	This manuscript is scientifically robust and technically sound due to its use of well-established statistical methods to assess climate trends, specifically the Mann-Kendall (MK) trend test and Sen's Slope Estimator (SSE), both widely accepted for detecting monotonic trends in time series data. The application of change-point analysis using CUSUM and Sequential Mann-Kendall tests strengthens the identification of shifts in rainfall patterns, providing a reliable understanding of climate dynamics. The downscaling of data into shorter durations (5 minutes to 24 hours) ensures a detailed and precise analysis of rainfall trends, enhancing the study's relevance for practical applications such as flood risk management. Additionally, the study's focus on non-stationary Intensity-Duration-Frequency (IDF) modeling addresses contemporary challenges in climate risk, making it highly relevant for policy and urban planning.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	1. Trend detection in weather parameters using Mann-Kendall test for Tarai region of Uttarakhand SHUBHIKA GOEL and R.K. SINGH Pantnagar Journal of Research, Volume - 22, Issue - 1 (January-April 2024) 2. Kliengchuay, W., Mingkhwan, R., Kiangkoo, N. *et al.* Analyzing temperature, humidity, and precipitation trends in six regions of Thailand using innovative trend analysis. *Sci Rep* 14, 7800 (2024). https://doi.org/10.1038/s41598-024-57980-5. 3. Agarwal, Sunny & Suchithra, A S & Gurjar, Surendra Pal. (2021). Analysis and Interpretation of Rainfall Trend using Mann- Kendall's and Sen's Slope Method. Indian Journal of Ecology. 48. 453-457.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Yes	
Optional/General comments		

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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