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JournalName:	Asian JournalofProbabilityand Statistics
ManuscriptNumber:	Ms_AJPAS_125180
Title oftheManuscript:	Establishing Climate Changeon RainfallTrend,Variation and ChangePoint Pattern in Owerri,Nigeria.
Type ofthe Article	

PART1: ReviewComments

Compulsory REVISIONcomments	Reviewer's comment	Author's Feedback (Pleasecorrect themanuscript andhighlight thatpart inthe manuscript.It is mandatory thatauthors shouldwritehis/her feedback here)
<p>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.</p>	<p>Very impressive and good work. This manuscript is significant for the scientific community because it addresses localized climate trends in a region highly vulnerable to climate change, specifically focusing on rainfall variations in Owerri, Nigeria. By employing rigorous statistical methods, it adds valuable regional data that can support urban planners and policymakers in understanding potential shifts in precipitation patterns, which are critical for infrastructure resilience, water resource management, and agricultural planning. The study's detailed analysis of change points and rainfall trends fills a gap in climate research specific to southeastern Nigeria, emphasizing the need for continued monitoring in the face of subtle but possibly emerging climatic shifts. This work is commendable for its methodological rigor and practical relevance, though additional data and further investigation could enhance the robustness of its findings.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title, "<i>Establishing Climate Change on Rainfall Trend Variation and Change Point Pattern in Owerri Nigeria</i>," is mostly clear, but it could be made more concise and engaging. A more streamlined title could be:</p> <p>"Assessing Rainfall Trends and Change Points in Owerri, Nigeria: Implications of Climate Change"</p> <p>This revised title emphasizes the study's focus on rainfall trends and change points while linking it directly to climate change, enhancing clarity and readability.</p>	

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<p>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.</p>	<p>The abstract is generally comprehensive, covering the study's objectives, methods, key findings, and implications. However, there are a few areas that could be refined for clarity and impact:</p> <ol style="list-style-type: none"> Objective Clarity: Explicitly state the research goal at the beginning, such as "This study aims to analyze long-term rainfall trends and change points in Owerri, Nigeria, to understand climate change impact on local precipitation patterns." Methodology: The abstract should briefly mention why the Indian Meteorological Department (IMD) model was chosen for downscaling, as this is a unique methodological choice that adds value. Results Precision: The abstract could summarize key findings more concisely. For example, it might mention that while the trends in rainfall patterns are decreasing, they lack statistical significance, and briefly note the implications of the 2013 and 2017 change points. Implications Emphasis: End with a stronger statement on the study's practical applications, such as "These findings underscore the importance of continued monitoring to inform urban planning and water resource management in a climate-sensitive region." <p>These changes would make the abstract more focused, highlighting the study's relevance and enhancing the reader's understanding of its significance.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The manuscript's structure and subsections are generally appropriate, as it follows a logical progression from introduction through methods, results, discussion, and conclusion. However, here are a few suggestions to improve readability and flow:</p> <ol style="list-style-type: none"> Introduction: This section could benefit from a more focused background on the significance of rainfall trends and change-point analysis in climate studies. Including a short paragraph on regional studies relevant to Owerri would also strengthen the context. Materials and Methods: This section is well-structured, but adding brief explanations for the choice of specific statistical tests (such as the Mann-Kendall and CUSUM tests) could provide clarity, especially for readers less familiar with these methods. Results and Discussion: Combining results with the discussion in one section might improve the coherence, as it allows immediate interpretation of findings alongside the data. Alternatively, if these sections are separated, each finding should be briefly explained with implications in the discussion section. Conclusion: This section could be expanded slightly to outline more specific recommendations for future research or data monitoring needs. <p>These structural refinements would strengthen the manuscript's clarity, especially for readers from interdisciplinary backgrounds. Overall, the subsections align well with standard scientific reporting.</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is</p>	<p>This manuscript demonstrates scientific rigor by employing established statistical methods, such as the Mann-Kendall test and Sen's Slope Estimator, which are widely recognized for trend analysis in climate studies. The use of change-point detection methods, like CUSUM and Sequential Mann-Kendall tests, adds further</p>	

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<p>sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>robustness to the findings by pinpointing years of potential shifts in rainfall patterns, even if these shifts are not statistically significant. Additionally, the decision to downscale rainfall data using the Indian Meteorological Department model allows for a comprehensive temporal analysis across multiple durations, enhancing the study's detail and accuracy. Overall, the manuscript is technically sound, as it combines appropriate statistical methods with long-term data to produce reliable insights into regional climate trends.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>There are references in the manuscript that are generally sufficient and cover foundational studies in climate change, trend analysis, and rainfall patterns, as well as regional studies relevant to Nigeria and the Niger Delta. However, there is room to include a few more recent sources to strengthen the discussion of rainfall trend analysis in the context of climate change.</p> <p>There is a typo in the manuscript (Arimashaun) and in the references list (Animashaun).</p> <p>Some of the references are not in the manuscript:</p> <p>Bărbulescu, A. (2023). On the Regional Temperature Series Evolution in the South-Eastern Part of Romania. <i>Applied Science</i>, 13, Article 3904. https://doi.org/10.3390/app13063904</p> <p>Ebele, N.E. and Emodi, N.V. (2016). Climate Change and Its Impact in Nigerian Economy. <i>Journal of Scientific Research and Reports</i>, 10, 1-13. https://doi.org/10.9734/JSRR/2016/25162</p> <p>Huang, M., Lin, Q., Pan, N., Fan, N., Jiang, T., He, Q. and Huang, L. (2019). Short-Term Precipitation Forecasting Rolling Update Correction Technology Based on Optimal Fusion Correction. <i>Journal of Geoscience and Environment Protection</i>, 7, 145-159. https://doi.org/10.4236/gep.2019.73008</p> <p>Kendall, M.G. (1975). <i>Rank Correlation Methods</i>. Griffin, London.</p> <p>Mann, H.B. (1945). Nonparametric Tests against Trend. <i>Econometrica</i>, 13, 245-259. https://doi.org/10.2307/1907187</p> <p>Margaritidis, A. (2021). Site and Regional Trend Analysis of Precipitation in Central Macedonia, Greece. <i>Computational Water, Energy, and Environmental Engineering</i>, 10, 49-70. https://doi.org/10.4236/cweee.2021.102004</p> <p>Matemilola, S. (2019). Mainstreaming climate change into the EIA process in Nigeria: Perspectives from projects in the Niger Delta Region. <i>Climate</i>, 7(2), 29. https://doi.org/10.3390/cli7020029</p> <p>Sam, M.G., Nwaogazie, I.L. and Ikebude, C. (2021). Improving Indian Meteorological Department Method for 24-Hourly Rainfall Downscaling to Shorter Durations for IDF Modeling. <i>International Journal of Hydrology</i>, 5, 72-82. https://doi.org/10.15406/ijh.2021.05.00268</p> <p>Sam, M.G., Nwaogazie, I.L. and Ikebude, C. (2022). Non-Stationary Trend Change Point Pattern Using 24-Hourly Annual Maximum Series (AMS) Precipitation Data. <i>Journal of Water Resources and Protection</i>, 14, 592-609. https://doi.org/10.4236/jwarp.2022.148031</p>	

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	<p>Sam, M.G., Nwaogazie, I.L. and Ikebude, C. (2022). Climate Change and Trend Analysis of 24-Hourly Annual Maximum Series Using Mann-Kendall and Sen Slope Methods for Rainfall IDF Modelling. International Journal of Environment and Climate Change, 12, 44-60.</p> <p>https://doi.org/10.9734/ijecc/2022/v12i230628</p>	
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<p><u>Minor</u>REVISIONcomments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language quality of the article is generally suitable for scholarly communication; however, there are areas where clarity and flow could be improved. Some sentences are lengthy or contain technical terms that may benefit from simplification to improve readability for a broader audience. Additionally, some sections, like the methodology and discussion, could benefit from more concise language to enhance comprehension.</p> <p>Suggested Improvements:</p> <ol style="list-style-type: none"> Simplify Technical Jargon: Where possible, simplify or briefly explain specialized terms to make the content accessible to readers from other disciplines. Sentence Structure: Break down long sentences into shorter ones to enhance readability. Proofreading for Grammar: Conduct a final grammar and punctuation check to ensure consistent scholarly tone and eliminate minor errors. <p>These adjustments would make the article's language clearer and more engaging for a scholarly audience.</p> <p>Yes, the article's language is mostly suitable for scholarly communication, but it could benefit from some refinement to enhance clarity and readability. The technical terminology is appropriate for the subject matter; however, certain sections—particularly the methodology and results—contain long sentences and complex phrasing that may be challenging for readers outside the specific field. A few additional edits for grammar, punctuation, and sentence structure would further polish the text.</p>	
<p><u>Optional/General</u>comments</p>	<p>Strengths and Limitations:</p> <p>The article provides a thorough analysis using robust statistical tests, contributing to regional climate data crucial for sustainable planning in Owerri. However, the study's lack of statistically significant findings suggests that further long-term data and analysis might be necessary to draw definitive conclusions on climate impact.</p> <p>Overall, the research contributes valuable insights into rainfall trends in Owerri, highlighting the importance of preparedness for potential shifts in precipitation patterns due to climate change.</p> <p>Here are some general comments that could enhance the manuscript further:</p> <ol style="list-style-type: none"> Figures and Tables: Ensure that all figures and tables are clearly labeled and include descriptive captions. This will help readers understand the data presented without needing to refer back to the text extensively. Literature Contextualization: While the manuscript provides a good overview of existing studies, a stronger emphasis on how this research contributes to or contrasts with previous findings could deepen the discussion. Highlighting these connections would underscore the significance of the current study within the broader field of climate research. Future Research Directions: Consider including a brief section or a few sentences in the conclusion discussing potential future research directions. This could involve longer-term monitoring of rainfall trends or investigating other climate variables that might influence rainfall patterns in Owerri. 	

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	<p>4. Practical Recommendations: The manuscript could strengthen its practical implications by offering specific recommendations for urban planners or policymakers based on the findings. This would enhance its applicability and relevance to local stakeholders.</p> <p>5. Interdisciplinary Appeal: To broaden the appeal of the manuscript, consider discussing the potential interdisciplinary implications of the findings, particularly how they relate to public health, agriculture, or urban planning.</p> <p>Incorporating these comments could further enrich the manuscript and enhance its impact within the scientific community. Based on the content provided, there do not appear to be any obvious competing interest issues in the manuscript.</p> <p>Based on the information provided in the manuscript, there do not appear to be any direct ethical issues related to the research.</p>	
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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?	<i>(If yes. Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

Name:	Azreen Harina Binti Azman
Department, University & Country	University Malaysia Pahang Al Sultan Abdullah, Malaysia