

Review Form 1.7

Journal Name:	Asian Journal of Probability and Statistics
Manuscript Number:	Ms_AJPAS_116222
Title of the Manuscript:	RAINFALL PATTERN IN KENYA; BAYESIAN NON-PARAMETRIC MODEL BASED ON THE NORMALIZED GENERALIZED GAMMA PROCESS
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	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)
<p>Compulsory REVISION comments</p> <ol style="list-style-type: none"> Is the manuscript important for scientific community? (Please write few sentences on this manuscript) Is the title of the article suitable? (If not please suggest an alternative title) Is the abstract of the article comprehensive? Are subsections and structure of the manuscript appropriate? Do you think the manuscript is scientifically correct? Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. <p>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</p>	<p>Reply 1-6 The Author(s) focusing on the understanding the distribution of rainfall in Kenya that holds paramount importance across several sectors, notably agriculture, water management, and disaster risk reduction. This study introduces a Bayesian non-parametric methodology to analyze rainfall patterns within the country. Specifically, we employ a hierarchical Dirichlet process mixture model to group rainfall stations based on similarity in patterns. Within these groups, we utilize a Bayesian non-parametric model grounded on the normalized generalized gamma process to characterize the distribution of rainfall. Application of this methodology to a dataset spanning daily rainfall measurements from 150 stations in Kenya between 1980 and 2021 unveils diverse regional rainfall patterns. Some regions exhibit bimodal rainfall distributions, while others display unimodal patterns. Additionally, our analysis reveals heavy-tailed and skewed distributions within each region, challenging traditional parametric models. In summary, our approach offers a flexible and interpretable framework for analyzing intricate spatio-temporal data like rainfall patterns, thereby facilitating informed decision-making across multiple sectors. The paper is well-organized and the language is well. The manuscript is acceptable. The manuscript is interesting and documented, and is including both theoretical and practical results. I believe that the scope of the paper agrees with those of the Asian Journal of Probability and Statistics as well as the paper will be useful for readers of the Asian Journal of Probability and Statistics. However, I consider that the paper will benefit if the authors address within the manuscript the requested aspects from authors.</p>	
<p>Minor REVISION comments</p> <ol style="list-style-type: none"> Is language/English quality of the article suitable for scholarly communications? 	<p>Yes</p>	
<p>Optional/General comments</p>		

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PART 2:

	Reviewer's comment	Author's comment <i>(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)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

Name:	Azaz Ahmed
Department, University & Country	Govt. Islamia Graduate College, Pakistan