

Review Form 3

Journal Name:	Asian Research Journal of Mathematics
Manuscript Number:	Ms_ARJOM_123768
Title of the Manuscript:	Design of a climate model for forecasting and alerting meningitis epidemics in Burkina Faso.
Type of the Article	

General guidelines for the 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 guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<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>Overall, this manuscript makes a meaningful contribution to meningitis research in the African meningitis belt by developing predictive models and analytical techniques that can support epidemic forecasting and prevention efforts. The study's strengths lie in its integration of epidemiology, climatology, and mathematics, as well as its comprehensive analysis of 30 years of data.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The current title, "Design of a climate model for forecasting and alerting meningitis epidemics in Burkina Faso", is descriptive but could be made more concise and impactful. A suggested alternative title might be:</p> <p>"Climate-Based Predictive Model for Meningitis Epidemics in Burkina Faso"</p>	
<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 should be revised to provide a more complete overview of the study. It should briefly mention the use of a multiple linear regression model with climatic factors and include performance metrics such as R² values to highlight the model's accuracy. Additionally, it should emphasize how the model can be applied for public health interventions, such as early warning systems, while remaining concise and focused.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The structure looks okay.</p>	
<p>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.</p>	<p>The manuscript is scientifically sound as it develops a well-defined mathematical model based on established climatic factors influencing meningitis outbreaks. The use of multiple linear regression is a valid approach for modeling the relationship between these factors and the disease. Additionally, the dataset spans a considerable period (1990-2020), providing a robust foundation for analysis.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>While some key works are cited, including more up-to-date references from the last 5 years would strengthen the manuscript, especially in terms of recent advancements in climate-based epidemic modeling and public health forecasting. Additionally, including studies that use similar statistical modeling techniques in health-related applications could provide a broader context for the research.</p>	

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<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language quality of the article is adequate but could benefit from improvements to enhance clarity and fluency for scholarly communication. Some sentences are overly complex, and a few grammatical errors detract from the overall readability. Simplifying sentence structures and refining phrasing would help convey the ideas more clearly. For example, the sentence:</p> <p><i>"This means that there exists a linear interdependence between the variables. This leads us to say that the number of cases of meningitis depend linearly on climatic factors."</i></p> <p>could be revised for clarity as:</p> <p><i>"This indicates a linear relationship between the variables, suggesting that the number of meningitis cases is influenced by climatic factors."</i></p>	
<p>Optional/General comments</p>	<ol style="list-style-type: none"> Regarding the coefficient vectors, they should indeed use decimal points instead of commas. For example, $\beta_{1.1} = -0.4045$ (not $-0,4045$). This correction should be applied consistently throughout the manuscript. Including additional validation metrics, such as Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE), would enhance the model's credibility and improve its applicability for forecasting by providing a more comprehensive evaluation of prediction accuracy. The explanation of R^2 in the manuscript is unclear. R^2 represents the proportion of the variance in the dependent variable that is explained by the independent variables in the model. It indicates how well the independent variables account for the variability in the outcome, with higher values suggesting a better fit. 	

PART 2:

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

Reviewer Details:

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