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REVIEWER'S REPORT

Manuscript No.: IJAR-56126

Title: "Variabilité intra-saisonnière des paramètres agroclimatiques dans le Bassin Arachidier du Sénégal de 1950 à 2022"

Recommendation:
Accept after minor revision

Rating	Excel.	Good	Fair	Poor
Originality		✔,		
Techn. Quality		✔,		
Clarity	✔,			
Significance	✔,			

Reviewer Name: Dr Abdul Haseeb Mir

Detailed Reviewer's Report

The manuscript titled "Variabilité intra-saisonnière des paramètres agroclimatiques dans le Bassin Arachidier du Sénégal de 1950 à 2022" offers a critical and long-term climate analysis of one of Senegal's most economically vital agricultural regions. By examining over seven decades of daily rainfall data, the study provides a robust scientific foundation for understanding the shifting dynamics of the rainy season (wintering) in the Groundnut Basin. The research successfully identifies the spatiotemporal evolution of key agroclimatic parameters, such as the onset and retreat of rains, seasonal accumulation, and the frequency of dry spells, which are essential for determining agricultural productivity and food security in the Sahelian context.

A primary strength of this article is its detailed temporal segmentation, particularly the contrast between the pre-crisis period (1950–1969), the Sahelian drought crisis (1970–1999), and the recent phase of partial recovery (2000–2022). The author's finding that the rainy season has become increasingly unpredictable—characterized by delayed starts and premature ends—even during the recent "recovery" phase, is a significant contribution to regional climatology. It challenges the simplistic narrative of a return to normal rainfall and highlights a new era of "moderate and spatially contrasting" improvement. This nuance is crucial for local farmers who must adapt their sowing calendars to a season that is shorter and more volatile than that of their predecessors.

The methodology, which utilizes daily data from ten primary stations and five secondary posts, ensures a high degree of granularity. The use of specific indices to calculate the length of the rainy season and the duration of dry spells allows the author to move beyond annual totals to address the "intra-seasonal" reality that actually dictates crop success or failure. The geographical analysis, showing the north-south gradient of rainfall retreat and the longer dry spells in the northern basin, provides a clear map of

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vulnerability. By linking these climatic shifts to the "Sahelian climate crisis," the research situates local data within a broader global discussion on climate change and its disproportionate impact on rain-fed agricultural systems in Africa.

Furthermore, the article provides a strong empirical basis for agricultural policy interventions. The conclusion that agroclimatic conditions remain fragile despite a slight increase in total rainfall serves as a warning against complacency. The transition from stable, predictable seasons to the current state of "agroclimatic unpredictability" documented here necessitates a shift toward climate-smart agriculture and the development of drought-resistant crop varieties. The author's work effectively bridges the gap between meteorology and rural sociology, acknowledging that climate data is only as useful as its ability to inform the resilience of the communities living through these changes.

To further enhance the manuscript for academic publication, a few minor revisions are recommended. First, while the data analysis is excellent, the "Discussion" section could be strengthened by explicitly linking the findings to recent IPCC reports on the intensification of the hydrological cycle in West Africa. Second, the "Introduction" would benefit from a more detailed description of the groundnut varieties currently used in the basin to provide more agronomic context to the "dry spell" thresholds used in the study. Finally, a minor editorial review is required to ensure that the bibliography follows a uniform academic format (such as APA 7th edition), specifically checking for consistency in the presentation of French and international journal titles and the inclusion of DOI links where available.

In summary, this article is a well-researched, comprehensive, and essential contribution to the study of climate variability in Senegal. It provides a clear and sobering look at the environmental challenges facing the Groundnut Basin. **Therefore, I recommend this manuscript for publication with minor revisions to address the contextual and formatting enhancements noted above.** This work stands as a vital record for both current climate researchers and future policymakers tasked with ensuring the stability of Senegalese agriculture.