

**Review Form 1.7**

Journal Name:	<b>International Journal of Environment and Climate Change</b>
Manuscript Number:	<b>Ms_IJECC_120036</b>
Title of the Manuscript:	<b>Potential of gridded precipitation estimate products for hydrological modelling: The case of small watersheds in Côte d'Ivoire.</b>
Type of the Article	

**Review Form 1.7**

**PART 1: Review Comments**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (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><b>Compulsory</b> REVISION comments</p> <ol style="list-style-type: none"> <li>1. <b>Is the manuscript important for scientific community?</b> (Please write few sentences on this manuscript)</li> <li>2. <b>Is the title of the article suitable?</b> (If not please suggest an alternative title)</li> <li>3. <b>Is the abstract of the article comprehensive?</b></li> <li>4. <b>Are subsections and structure of the manuscript appropriate?</b></li> <li>5. <b>Do you think the manuscript is scientifically correct?</b></li> <li>6. <b>Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</b></li> </ol> <p><b><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></b></p>	<p>This study aims to address the challenge of inadequate ground-measured rainfall data in Côte d'Ivoire by evaluating the performance of various gridded precipitation estimate products for hydrological modelling. Utilizing the GR4J lumped model, the research assesses CHIRPS, GPCC, MSWEP, PERSIANN-CDR, PERSIANN-CCS-CDR, TAMSAT, WFDE5-CRU, and WFDE5-CRU-GPCC across 14 small watersheds, using metrics such as KGE2, NSE, VE, PBIAS, and ME. The findings indicate that WFDE5-CRU-GPCC consistently performs well across all climatic zones, with CHIRPS and PERSIANN-CDR showing strong performance in transitional tropical and mountainous zones. This evaluation is significant for improving hydrological models in regions with sparse rainfall data.</p> <p><b>Introduction:</b> The introduction effectively highlights the problem of insufficient ground-based rainfall data and presents gridded precipitation estimates as a viable alternative. The rationale for the study is clear, emphasizing the need for reliable hydrological modelling in Côte d'Ivoire. However, the introduction would benefit from additional citations to previous studies that have successfully applied gridded precipitation products in similar contexts, providing a stronger theoretical foundation for the research.</p> <p><b>Literature Review:</b> The literature review offers a comprehensive overview of various gridded precipitation products and their applications in hydrological modelling. The inclusion of products like CHIRPS, GPCC, MSWEP, and others is well-justified. To enhance this section, the authors should incorporate more recent studies and comparative analyses that detail the strengths and weaknesses of each product in different climatic settings. This would provide a more nuanced understanding of the potential and limitations of these datasets.</p> <p><b>Methodology:</b> The methodology is robust, utilizing the GR4J lumped model to simulate flows in multiple watersheds. The choice of performance metrics (KGE2, NSE, VE, PBIAS, and ME) is appropriate and allows for a comprehensive evaluation. However, a more detailed explanation of the calibration and validation processes, as well as the criteria for selecting the 14 watersheds, would strengthen the transparency and reproducibility of the study. Including a table or flowchart summarizing the methodological steps could also improve clarity.</p> <p><b>Results and Discussion:</b> The results are presented clearly, with WFDE5-CRU-GPCC identified as the best-performing product across all climatic zones. The discussion effectively interprets these findings, linking them to the specific climatic characteristics of Côte d'Ivoire. However, the discussion could be enriched by comparing these results with those from other regions or similar studies, providing a broader context. Additionally, addressing the potential limitations of the gridded products, such as spatial resolution and temporal accuracy, would offer a more balanced perspective.</p> <p><b>Conclusion:</b> The conclusion succinctly summarizes the key findings and their implications for hydrological modelling in Côte d'Ivoire. It reinforces the importance of using reliable precipitation estimates to enhance water resource management. The conclusion would be more impactful with suggestions for future research, such as exploring the integration of multiple gridded products or advancing local calibration techniques to improve model accuracy.</p> <p><b>Overall Evaluation:</b> Overall, "Potential of Gridded Precipitation Estimate Products for Hydrological Modelling: The Case of Small Watersheds in Côte d'Ivoire" is a well-executed study that addresses a critical gap in hydrological data. The use of multiple gridded precipitation products and a rigorous evaluation framework provides valuable insights for researchers and practitioners in the field. To</p>	

**Review Form 1.7**

	further enhance the article, the authors should incorporate more citations from recent literature, provide a more detailed methodology, and discuss the limitations of their approach. This study makes a significant contribution to the field of hydrological modelling and offers practical recommendations for improving water resource management in regions with sparse rainfall data.	
<b>Minor</b> REVISION comments		
1. Is language/English quality of the article suitable for scholarly communications?	Not.	
<b>Optional/General</b> comments	Recommended articles: <a href="https://www.sciencedirect.com/science/article/pii/S2214241X15001273">https://www.sciencedirect.com/science/article/pii/S2214241X15001273</a> and <a href="https://www.sciencedirect.com/science/article/pii/S1364815215300529">https://www.sciencedirect.com/science/article/pii/S1364815215300529</a> and <a href="https://www.mdpi.com/2225-1154/11/10/198">https://www.mdpi.com/2225-1154/11/10/198</a> Etc.	

**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (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:**

Name:	Lorant Denes David
Department, University & Country	John Von Neumann University, Hungary