

Review Form 1.6

Journal Name:	Journal of Geography, Environment and Earth Science International
Manuscript Number:	Ms_JGEESI_83692
Title of the Manuscript:	Evaluation of Extreme Precipitation over Northern and Southern Nigeria using CMIP6 Models
Type of the Article	Original Research 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)
Compulsory REVISION comments	<p>Introduction: -In the introduction section, the authors should highlight the need or importance of this study to the international scientific community among other players. Actually, there are many similar studies conducted over West Africa, which used many models, similar observational data (GPCP), and various statistical metrics compared to the current study. For instance, see https://doi.org/10.1007/s00382-021-05942-2</p> <p>Study Area: -Figure 1: The map showing the study domain (Fig1) can be improved by locating Nigeria on the Africa map and also adding the sub-regions considered in this study. Readers cannot easily locate where Guinea coast (southern Nigeria), Savannah, and Sahel (northern Nigeria) regions on the Nigerian map presented in the manuscript (Line 92-95).</p> <p>Methods: -Line 104-105: Authors should explain their motivation to use GPCP (1*1 deg resolution) datasets in this study, yet there are other datasets like CPC with high resolution (0.5 degrees), CHIRPS (0.05 degree), etc. GPCP daily precipitation is only available from 1996 to the present. It is highly recommended to use 30 years or more when conducting climatological studies. The present study used only 17 years (1997 to 2014) to evaluate the performance of 13 CMIP6 models in replicating extreme precipitation. I would suggest authors to use other available high-resolution and long-term observations datasets to accurately assess CMIP6 models' performance. -Table 1: More than 40 CMIP6 models are currently available to use. Why did the authors choose to use only 13 models? In addition, GCMs have different number of runs or variants. Did the authors consider all variants? Explanations on the model selection and the number of variants considered should be provided in this manuscript. -This study uses global climate models with a coarse resolution for a local study, which is not advisable at the local scale. Using models with this coarse resolution does not provide any difference between your study and others conducted at the regional and global scales. Considering 1*1 degree of resolution, how many grids are in Nigeria? Did you think of using CMIP6 HighResMIP simulation? This could be more advantageous than using GCM (http://dx.doi.org/10.3390/atmos11101053). Otherwise, you may consider downscaling those GCMs using existing statistical techniques and then evaluate their performance. -The methods used in this study are not clearly explained. Authors should deeply explain the methods (statistical metrics) used and their motivation to use them. You do not need to write all mathematical formulas; provide references instead. The method used to assess the trends should be explained in the methodology section.</p> <p>Results & Discussion: -The authors did not explain the time scale at which they computed and evaluated the performance of CMIP6 models in simulating extreme precipitation events over Nigeria. Thus, it is difficult to interpret their results. Authors should explain whether the presented results are climatological (1997-2014 mean) or any other time scale used. Due to high variations in precipitation, authors are requested to present results into seasons. - More discussion with the previous studies or results in the region i.e., West Africa, Africa and other regions should be done. At present, there is no discussion in the draft, which limits the finding in-depth.</p> <p>Conclusion: -Conclusion should be rewritten. Please provide a clear and concise summary of the whole paper.</p>	
Minor REVISION comments	<p>Proficiency level: -Author (s) should thoroughly check and correct some grammatical defects in the paper. Specifically, tenses and punctuations. References: -References provided are inconsistent. Authors are advised to check and adhere strictly to the journal's format. Again, a number of the references have not been properly cited/referenced as they lack some key details.</p>	
Optional/General comments	The manuscript is generally informative and can be considered for publication if the author or authors are willing to incorporate the comments raised.	

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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>	

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