

Review of: "Precipitation and Temperature Trends over the Lake Tana Basin, Ethiopia"

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Preprint Review: "Precipitation and Temperature Trends over the Lake Tana Basin, Ethiopia"

General comment

According to the revision that I carried out, I allow myself to inform the authors that their preprint is a good review effort that different authors have carried out about precipitation and temperature trends over Lake Tana basin in Ethiopia. However, it is my duty to tell you that I found some inaccuracies which I point out below, with the purpose of correcting them so that your paper can be approved.

Particular comments by section

Title

The title does not reflect what is found within the preprint, since not only trends are presented, but also climate scenarios.

Abstract

The authors propose... to critically **evaluate** and **assess**, etc...; I suggest to the authors that they think carefully about what each of the words that I highlighted in black means, because what I saw in the content of the preprint is that a compilation of many articles related to the subject of study is made and the main results presented, but evaluation and critical assess is absent.

I didn't find the change point detections inside the article; I suggest authors incorporate that part where appropriate. One question, what do the authors mean by saying that Lake Tana Basin has more variation, erratic and fragile, in the extremes of monthly precipitation (lines 11 and 12), than seasonal and annual precipitation? I suggest you look for more technical synonyms appropriate to the context in which you are writing.

Do not mix the observed changes in temperature and precipitation (lines 15 and 16) since the behaviors are different. The suggestion would be for them to comment, for example, on the differences in annual changes in mean temperatures, maximum temperatures, and minimum temperatures, in the case of precipitation, to comment, for example, annual changes in contrast to seasonal changes.

It seems to me that the summary should be rewritten again with the suggestions that I am making in the lines above. I remind the authors that a summary should contain objective(s), methodology, results, and conclusions, in a concise manner and as clear as possible.

Introduction

Second paragraph, lines 4 to 7. Precipitation and temperature extremes are not components of the climate system; I must

remind the authors that both precipitation and temperature are climatic elements.

The last paragraph should be substantially shortened due to circumlocution.

Study area

I suggest the authors identify the weather stations in the study area in Figure 1 (with a number, for example) and that a precise identification of each of the stations (latitude, longitude, altitude) be made in a table. This will be useful to identify in the text which weather stations you are referring to (add a column in the table that has information on the number of years used for the studies reviewed); The foregoing will be useful to deepen the discussion, since it will be possible to analyze if there is a preferred orientation in the Basin in which the temperature is increasing, and identify the ambiguous nature of the precipitation.

In the paragraph that says... The basin had a unimodal rainfall distribution, and it received a high amount of rain during the main rainy season.

It should say: The basin has a unimodal rainfall distribution, and it receives a high amount of rain during the main rainy season.

Methodology

First paragraph, first line. Correct the word compressive for comprehensive (I think it's the right word).

In the first paragraph that says: To achieve a compressive assessment of the review, research findings from research data support and academic visibility engines were used. The data support and academic visibility engines were derived from the database of Web of Science, Scopus, and Google scholars.

I suggest to the authors that the previous paragraph read as follows: To achieve a comprehensive assessment of the review, research findings from research data support and academic visibility engines as Web of Science, Scopus and Google Scholar were used.

Lines 7 to 9 of the first paragraph are repeated in lines 11 to 12. I kindly ask the authors to review the entire text of the article to avoid duplication of paragraphs.

Figure 2, second rectangle from the right (Data Cleaning). Correct the word rends for trends.

Second paragraph, second line after figure 2. Correct the word perception by precipitation.

Second paragraph, lines 7 and 8. It says: 60 publications were selected for inclusion in the final database from the 90 identified papers. These numbers do not coincide with what is reported in Table 2.

Historical Precipitation and Temperature Extremes

In all the studies it is very important to mention, in addition to the period of years of data, the number of weather stations that were used to carry out the research. Be very clear whether the analysis used annual, seasonal, monthly, or hourly data. This can be very useful at the time of discussion.

First paragraph, lines 7 to 9, says: Extreme precipitation events have played a significant influence in many national disasters and remain a persistent issue. Authors should cite the years of those many national disasters and the source of those national disasters, adding economic damage and loss of human lives.

First paragraph, lines 18 to 20. Are the rainfall magnitudes that decreased in Enjibara and Wegera, and the one that increased in Addis Zemen, statistically significant?

Last three lines of the first paragraph, how relevant for the study is it to mention how the total annual rainfall is distributed?

In table 2, in the study by Mengistu et al. (2014) mention the period of the climatic variables analyzed.

Projected Precipitation and Temperature Extremes

First paragraph, line 4. In Getachew and Manjunatha's (2021) study, what base period did they use for their climate scenarios?

In the same study by Getachew and Manjunatha (2021), why do they comment on the scenario with an RCP of 4.5 for the maximum temperatures, while for the scenario of minimum temperatures an RCP of 8.5, and for the scenario of annual precipitation they do not mention any RCP?

First paragraph, line 10. In the study by Setegn et al. (2009), what is the base period that they used for their climate scenarios?

First paragraph, lines 11 and 12. How do the authors explain that the projected precipitation showed, at the same time, an increase and decrease, on the seasonal time scale?

First paragraph, line 16. In the study by Dile et al. (2013), with which RCP were the projections of annual precipitation made, and what was the base scenario?

Second paragraph, lines 1 and 2. It says: Precipitation, on the other hand, does not show decreasing or increasing trend scenarios in the study area. It is a categorical comment, I recommend the authors of the article to add it... According to some authors, precipitation does not show, etc...

Second paragraph, lines 2 to 7. The paragraph is poorly structured, needs to be corrected; I want to tell the authors that the A2 and B2 scenarios referred to in this paragraph are outdated. The paragraph I am referring to is the following: According to Abdo et al. (2009), the finding of downscaled precipitation showed that, unlike minimum and maximum temperature, precipitation does not show a systematic increase and decrease reported that the findings of downscaled precipitation demonstrate that, unlike minimum and maximum temperature, precipitation does not show a systematic increase or decrease across all future horizons for both A2 and B2 scenarios.

Second paragraph, lines 7 to 9. Does the study by Enyew et al. (2014) corresponds to climate scenarios or historical trends?

Third paragraph. In Moges & Moges (2000) study, what was the baseline period, the quantitative increases discussed, and the period of the predicted climate scenario?

Third paragraph. In the studies by Cherinet et al. (2019) and Desalegn et al. (2016), how many weather stations were used, and what was the data period used? Comment on quantitative results (in the case of Cherinet et al. (2019).

Third paragraph. In the study by Worku (2015), it is necessary to comment on the probabilities of extreme precipitation events, according to what was found by two global models.

The authors must separate the studies of historical trends from the projections made, since in this section there is a mixture of both.

Discussions

This section is the heart of the manuscript where most readers will go after reading the abstract. It is my opinion that the discussion section is deficient since it is being presented as a repetition of the results in narrative form. I must remind the authors that this section must show the real contribution to the topic being investigated. The results obtained (in this case those presented from another research) must be interpreted. Limitations of the study should also be stated, as this allows

opportunities for future research to be considered.

As a guide to the authors for the discussion section, I share with you a brief orientation of what it should contain: 1) Make the interpretation of the results found in the studies reviewed. This involves translating the findings into practical, conceptual, or theoretical meaning; these interpretations should be presented in the same logical order in which the results were presented. 2) Reflect on the implications of these results; recommendations can be made aimed at increasing knowledge in the specific field by deepening research. 3) Include the potential limitations of the study. The researcher is often in the best position to discuss the limitations of the study, such as sample deficiencies, design problems, data collection difficulties, etc. The fact that these limitations are presented in the discussion demonstrates to readers that the author was aware of them and perhaps took them into account when interpreting the results. (English translation of Eslava-Schmalbalch J and Alzate JP. How to prepare the discussion of a scientific paper, Rev Col Or Tra 2011, 25(1), 14-17).

Conclusions

I remind the authors that the content of their paper is a review of climate trends and scenarios in the Lake Tana Basin in Ethiopia based on a methodological proposal. From that context, I suggest you build your conclusions, perhaps with an introductory sentence, and then display the numbered conclusions. For example: From the review carried out, presentation of results, analysis and discussion, the following conclusions can be obtained about climate trends and scenarios in the Lake Tana Basin in Ethiopia: 1) the historical temperature trend, etc...

I share the following with the authors. The conclusion must return to the objectives that were raised in the introduction, if any objective was not met, the reasons that justify why it was not possible to carry it out should be given. This section should conclude in a direct and simple way, supported by the results of the study carried out and presented in the paper; nothing should be discussed (that goes in the Discussion section), the work should not be recapitulated in condensed form (that goes in the Abstract section), nor should results be presented (that goes in the Results section).