Review of: "Thermal Remote Sensing: A tool to Determine Temporal Land Surface Temperature in Hawassa City, Ethiopia"

David Hidalgo Garcia[1]

1 Universidad de Granada

Potential competing interests: No potential competing interests to declare.

The article proposal deals with the study of the temperature of the earth's surface using Landsat satellite images over the city of Hawassa, Ethiopia. There are innumerable studies of this type that exist within the scientific community with the different Landsats. It might have been appropriate if the author had chosen the recently launched Landsat 9. The text does not present any new contributions in this field except for other evidence of the increase in the temperature of the earth's surface with the passage of time. The text has multiple errors and is incomplete with respect to the information it conveys. Therefore, it should not be published in the state it is currently in.

My specific comments are as follows:

1º) Introduction. It is necessary to rewrite the information provided since what is included is very general and already known and information on the research carried out is missing. I suggest including previous studies that have carried out similar studies with Landsat, indicating the variability obtained, the results and the errors detected. This will be beneficial to complement the subsequent discussion section of the results. I suggest including the issue of the need to use algorithms and which ones exist to determine the LST. In the abstract the author refers to Landsat 7 and 8 but in the introduction he talks about Landsat 5 and 8. Please correct. It is necessary to improve the GAP of the investigation. What does this research contribute to the multiple existing ones? And why can this area be interesting to carry out this study?

2º) Section 2.2. Landsat data used by the author are missing. It is necessary to establish the cloudiness index of the images and the time of passage of the satellite through the area under study.

3º) Figure 1 is incorrect. LST cannot be calculated from bands 4 and 5. Please correct.

4º) Figure 2. The author includes band 11 of Landsat 8 when in the description he only mentions band 10. The thermal band of Landsat 5 and 7 is 6. Therefore, the graph is wrong. Please correct.

5º) Table 1. Only Landsat 8 data appears.

6º) Clarify the process of classification and atmospheric correction carried out.

7º) Formulas do not appear in the document.

8º) In section 3 the author describes a soil classification that he has not previously referenced. Please, include in the data section, What has been the process carried out? How did you classify the soil? Soil classification validation process?

9º) The article lacks a discussion section of the results where these can be compared with other investigations already carried out and I gave validity to them. Rewrite and include the studies that I have previously suggested for the introductory section.

10º) The author talks about a validation process of Landsat 8 results with Landsat 8. Is this correct? It is not possible to validate the data of a satellite with the same satellite. In any case, the validation process should compare with the values of another satellite, in situ measurements or ambient temperature. Please clarify and correct.

11º) Conclusions. This section is a summary of the results section. Please rewrite with the main conclusions of the document. Include future lines of work and contributions of the document for the future urban development of the city.

12º) The process of calculating emissivity is not clear. Please include more information about it. What method have you used?