The latest version of the manuscript leaves much better impression when compared with the previous one. I appreciate authors' efforts to improve the manuscript based on both reviewers' suggestions. It obviously required a lot of work, but the manuscript now has significantly improved structure and consequently, notably improved readability. Also, a newly added validation chapter crucially contributes to the quality of the manuscript. However, I still find there is a space and need for further improvements, so my observations and suggestions in this regard are as follows:

- 1) The title does not correspond adequately to what is presented in the manuscript. It seems to me that the data set is developed with intention to be used in paleo-ecology (at least the introduction indicates so), therefore, there is no reason not to put that into the title. Also, I would remove "V1.0" from the title, I find it useless. I would rather put "high-resolution data set" or even more specifically: "1-km data set" if that is something what will differentiate it from other potential similar datasets. A suggested title could be: "CHELSA-TraCE21k high-resolution (or "1-km") data set downscaled transient temperature and precipitation data since the last glacial maximum development, validation and application in paleo-ecology", or something similar, maybe shorter. If you want to maintain the current title, then I am afraid you would have to change the bigger part of the introduction.
- 2) It was really an unfortunate decision to name equally both the data set and the algorithm/model CHELSA V1.2. Regrettably, I don't see significant progress in clarification in that context throughout the manuscript. Only between the lines 60 and 121, a reader can find the next phrases: "CHELSA V1.2 algorithm", "CHELSA V1.2 climate data set", "CHELSA V1.2 mechanistic downscaling model", "CHELSA V1.2 procedure", "CHELSA downscaling model", "CHELSA V1.2 model". It is just unacceptable and extremely confusing. I find it necessary to add a paragraph, for example, somewhere at the beginning of chapter 2, clarifying that and informing the reader there are the dataset and the algorithm/model with the same name. It has to be very clear. And try to use only 2 words in its description throughout the text, for example "data set" and "model/algorithm". In addition, once again, please, maintain consistency throughout the text and decide whether you want to use "TraCE21k" or "TraCE-21k".

3) In abstract, you say:"High resolution, downscaled climate model data are used in a

wide variety of applications across environmental sciences". Then in chapter 6, you start

with:"Transient long-term climatic data have a wide range of possible applications".

Please, add 2-3 examples where exactly, for example, just continuing the sentence by:"...,

such as A, B and C, for example".

4) Are there other comparable downscaled data sets available on the market? If yes, then,

what is the advantage of CHELSA-Trace21k, why is it different/better then the other ones,

why it should deserve attention, why is it unique? Please, clarify in a sentence/paragraph,

in conclusion, for example.

5) Before submitting a final version of the manuscript, I suggest a thorough inspection

regarding the consistency of the use of terms throughout the manuscript, as well as typing

and other errors

Specific comments:

Line 8:

High-resolution

Lines 9-10:

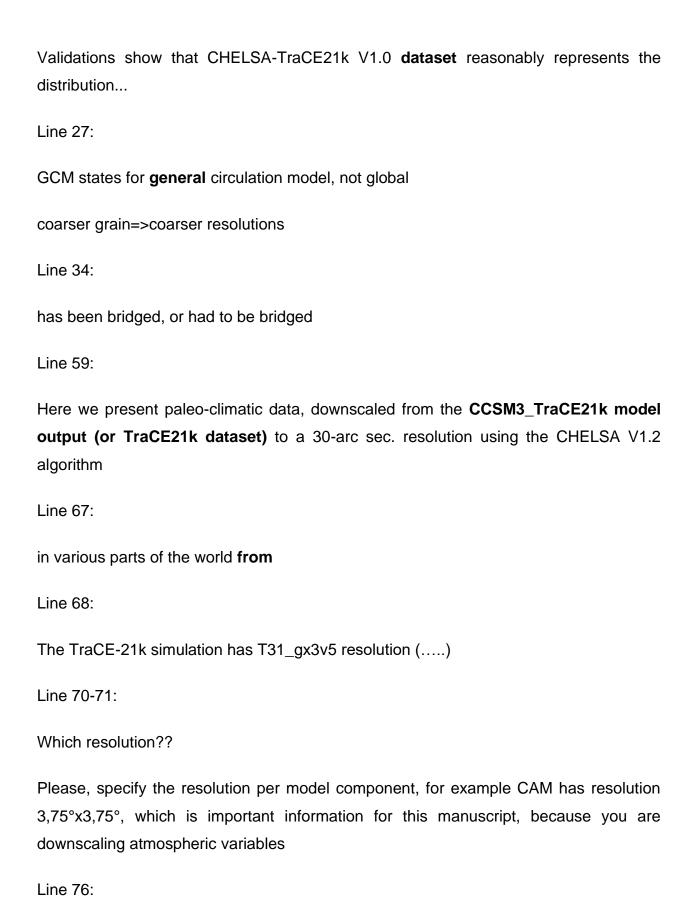
Here we introduce a new, high-resolution dataset, named CHELSA-TraCE21k. It is

obtained by downscaling TraCE-21k data, using CHELSA V1.2 algorithm with objective

to create global monthly climatologies for temperature and precipitation at 30-arc sec

spatial resolution in 100-year time steps for the last 21,000 years.

Line 18:



It includes <b>mean monthly daily 2m mean</b> , minimum, and maximum temperature ?!
Line 78:
ERA stands for 'ECMWF Re-Analysis'
Lines 332-335:
Figure 2, axis labels not very clear, should be improved
Line 361, 364, 373:
RMSE, not RSME
Lines 444-450:
Figure 6, a) and b) missing on the figure; a) is also missing in the legend
Line 455:
if the transient
Line 498:
Separate Figure 7 legend from the text below