Interactive comment on "Simulating climate warming scenarios with intentionally biased bootstrapping and its implications for precipitation" *by* Taesam Lee

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This article presents a statistical method to determine local climate change from global observations. With this approach, the Intentionaly Biased Bootstrapping (IBB) and some hypothesis, the author estimates the future temperature and precipitation at a local point. The article is clearly divided into several parts: a good description of the method, the complete procedure to permit to everyone to use easily it and a good application on the South Korea to validate the method with a good description of the results. The methodology is precisely described but some information will permit to improve the comprehension. I suggest to publish this article in GMD with minor revision. The different remarks and suggestions are described below.

Some questions

Line 31: To specify that the temperature from GCM is relatively accurate as you mention in the conclusion

Line 54: In some places, such as the Sahel, the increasing in temperature results from global warming but also from feedback related to the reduction of precipitations. It is perhaps too generalist to assert that everywhere the increasing in temperature will be followed by an increasing in precipitation with the self-order of magnitude. Can this depend on the type of precipitation or the origin (e.g. monsoon system or stratiform precipitation) ?

Line 78: In the methodology, some hypothesis must be mentioned: - The method is only based on the temperature mean. If in the future the extremes of temperature increases (warmest and coldest), the method does not take this into consideration. - For the precipitation, the evolution is in relation with only the temperature evolution in the methodology and the meso-scale change is not supported.

Line 160: for the block bootstrapping technique to simulate the temperature, I would like a better description of the method with one or two sentences because it is easier to read the entire method rather than reading into the references.

Line 191: Data description, you describe the available data (74 locations) and you give 1283 mm a year but you select 54 datasets with a good hypothesis (> 30 years available data). Is the precipitation mean the same with the only 54 datasets? I suggest to insert directly the selected datasets in the beginning of the paragraph with the hypothesis and the annual mean.

Line 250: you very accurately write that the test period is relatively short and not enough of high values of annual temperature. Did you tested a longer test period with a short validation period e. g. 20 years test period 1976-1997 and validation period 1998-2008 ?

Line 335: In the conclusion, the limits of the method in terms of variability of extremes should be recreated. This limit associated with IBB can still be disturbing for some applications such as extreme floods.

Figure 3 and 4, there are many data on it and it is not easy to analyse it for the reader. Maybe to classify the stations by order of error could permit to better interpret the results. I am not a good example to suggest to you a good representation of the results.

Technical notes

Line 58: 1 hour intensity Line 64: for this paragraph, a reference could be appreciated Line 98: local linear smoothing (Cai, 2001) Line 208: but employed in comparison ? Can you use validation ?

C3