

The authors bring answers to the previous comments made by the three reviewers. The pertinence of the paper is in the scope of the journal and results remain interesting. The addition of a discussion section, as well as the detail of the methodological framework are appreciated. There are still some points to clear up, but mainly from the form and not the content. There are still some sentences that are grammatically incorrect and improving the language would improve the fluidity as well as the understanding.

My main comments are about the form of the methodological framework (need subsections and reorganization), as well as the lack of description of the figures (which can be hard to understand, if we have only the legend and the interpretation). I also have a question about the relevance of transforming a probabilistic analogue method to a deterministic one.

General comments:

Methodological framework – Section 3:

1) I really had a hard time understanding the overall process of the method. I think it would be more understandable with subsections. As I understood:

p.6 l.13-18 = Sort of introduction

p.6 l.19 to p.7 l.2 = The analogue method (generalities) with a part of the setup (analogy domains)

p.7 l.3 to p.7 l.10 = How daily time series are created from the analogue method (outputs)

p.7 l.11 to p.7 l.19 = The monthly constraint. Here you mention the Step 3 of the method, but Steps 1 and 2 have not been mentioned before, which is confusing

p.7 l.20 to p.7 l.27 = Advantages of this method

p.7 l.28 to p.7 l.31 = Here, we begin with the setup, so the global reanalysis used (20CR). Isn't it possible to put that with the analogue method? Or to put all the setup together in the same subsection?

p.7 l.32 to p.8 l.2 = Step 2 (after Step 3 in the text)

p.8 l.3 to p.8 l.20 = Daily constraint, so Step 2. Why isn't it just after "how daily time series are created"?

p.8 l.21 to p.8 l.26 = We are talking about the monthly constraint again (step 3), it definitely lost me.

p.8 l.27 to the end of Section 3 = Conclusions

As you can see, I really had to separate the different paragraph to understand the chronology, which is not in coherence with the one in your Figure 2. Maybe you can regroup in subsections by Step (Intro / Step 1 / Step 2 / Step 3 / Conclusion) or add a subsection about the setup (which analogy domain, which reanalysis, etc..). And really use your figure 2 and describe it in the text. It is up to you for the subsections, but in my opinion, the form of this section can easily be improved with reorganization.

2) About your method, as I understand, at the end, you have a deterministic reconstruction. Why not keeping a probabilistic dataset to consider the uncertainties associated with the downscaling? Is it really relevant to select the best analogue day based on daily/monthly constraints, and not keep the 3, 5 or 10 best analogues at the end of the last step? Maybe you would have very different signals in your reconstruction, just with the 2nd best analogue?

Results:

3) Interpretation of figures is well discussed. However, there is a lack of precision to really understand the figures and what they represent. This is why it took me a long time to really appreciate your results. It is necessary to look at the legend, as well as the text, several times to catch up the idea behind the figure. Would it be possible, for each figure, to really explain the computations behind, with what data / what score, etc., before interpreting it? Like “Figure X represents ...” (computation), “It shows...” (factual description of the figure), “It means...” (interpretation)? The units are also missing in a lot of figures (% in Figure 8 for example) and legends are not totally clear.

Specific comments:

P1 l.19: “The” in “The future impacts of climate change” could be removed

p.1 l.21: Is the strong reduction of river flow in summer detected everywhere?

p.1 l.23-24: “...and regarding precipitation”. The sentence seems not finished. Did you simply mean “for precipitation”?

p.2 l.19: “The river flows variations” -> the river flow variation, be careful with these plurals (several times in the text, same p.4, l.16)

p.2 l.24-25: “which he attributes to change in atmospheric 25 circulation likely associated with the AMV” -> Please, check the grammar

p.3 l.13: “which makes very difficult” -> remove the “it”

p.3 l.34: Not sure that “varied” is the good word here. What do you mean? Observations of different variables contributing to the hydrological cycle?

p.3 l.35: “of high and low flows” -> remove the “the”

p.4 l.1: Not sure that “exhibit” is the good word here.

p.8 l.28 29: Prefer “These tests concern, for example, the best combination of weights given to precipitation and temperature errors **or** the number of analogs selected at each step (without the s).” Or develop the “etc.”

p.9 l.6: “Simply” could mean a lot of things! How do they are corrected?

p.9 l.13: Remove the “s” to “the medians”, same problem with the plural forms.

p.9 l.13: The median across what? Different observations? You have one series of observation and of reconstructed. So, what is about the median? You don’t really explain how this figure is constructed, and I am not sure I understood it.

p.9 l.30: “The meteorological forcing of the reconstruction is very likely not responsible for the potentially unrealistic trend in river flows, as reconstructed precipitation and temperature do not show unrealistic trends (not shown).” This sentence means a lot, and I am not sure to well understand it. Can you rephrase?

p.11 l.4: You’re talking about Figure 7 for annual river flows, but it shows low pass filtering, so is it the good figure?

p.13 l.13: You've explained that the 2/3 of the variations come from groundwater, and not precipitation, but maybe is it related?

p.16 l.13: "focusing"

References: Bindoff, Casanueva Vicente and Moisselin: Journal missing?