

*Synthesis of my review :*

*General comments Overall I find this an excellent paper which makes an important contribution to understanding French low flows but also in providing a highly transferable method for reconstruction of daily river flows in other countries/locations. The authors are to be congratulated; this paper provides a benchmark study. The paper would however benefit from some additional work on grammar and tightening the communication. Some aspects are a little hard to follow and would benefit from some careful thought on how to present in a clearer way to help the reader follow what is going on. I think that a lot of the appendix information should be integrated – e.g. the work flow figure is very useful to understanding what is going on. All of my specific comments below are minor and try to be constructive. Finally I apologise from my delay!*

The authors would like to thank Referee 3 for his positive comments on the manuscript. The detailed answers to the specific comments (in italic) are presented below.

*Specific comments In section 2.2.2 SCOPE climate it would be useful if the authors could introduce the data, then outline the steps in its use and then deal systematically with the additional treatments...for example it would be helpful to the reader of the final sentences in the section appeared earlier. These steps could then be used to organise the section*

For a better understanding, we will detail the SCOPE method in appendix. Only the SCOPE Climate dataset will be detailed in the main text. See also the related responses to referee #1 and referee #2.

*Given the objective of creating an ensemble reconstruction, why was only one hydrological model used and why is no consideration given to the uncertainty in the GR6J parameters. The model is calibrated for the period Jan 1973- sept 2006. Was there a reason for choosing this period based on variation in flow conditions? I ask as the model is expected to reconstruct conditions that are potentially very different from the calibration period. If the focus is on low flows – was consideration given to how the model performed for different duration/intensity events during the period of observations.*

There is a work in progress concerning the hydrological modeling structural uncertainty (see section 6.6). This will be presented in a future paper. The calibration period has been chosen as 90% of the observed data were available during this period. Moreover, it indeed includes three important extreme low-flow events (1976, 1990, 2003).

*I note that validation across the full set of catchments is not shown but is done – what were the salient points – it would be useful to summarise these in a couple of sentences. “It has to be noted that thorough validation experiments not shown here – out-of-sample experiments, split-sample experiments – have been performed to carefully quantify the overall hydrological modelling performance.”*

Thank you for this suggestion. A few salient points will be added to the manuscript.

*I find the spatial mapping procedure difficult to follow and its communication would benefit from more clearly laying out the steps and then showing the example application*

The principle is first explained (simply an overlap of dates). Then the definition of the required parameters is developed (spatial domain for the matching). Finally, the example only provides a better understanding of the use of two spatial domains (by HER and then over France). We do not think it would be possible to explain these two steps without an example. Nevertheless, we will try to improve the understanding of this step.

*Is it possible to make a conclusion around which aspect of drought – severity or duration – uncertainties are greatest?*

It would be difficult to establish such a statement as severity and duration are two different variables with different units (mm and days). It would be possible to compute the range of values using return periods but it would add uncertainties related to the distribution fitting. Moreover, these two aspects highly depend on the specific event considered. Figure 16 shows for example that there are more stations detecting a long event rather than a severe event in 1990. This is the contrary for the 1893 event.

*When reporting seasonality you mention no visible trend – is there evidence of trend in the other parameters- severity/duration? There would seem to be for severity in the Correze catchment.*

These assumptions are only based on the figures and formal trend tests have not been considered as the aim of the paper was to provide basic examples of the method.

*Please dont start section 4 with figures – text first.*

This will be corrected

*On page 22 the text states “More generally, this figure highlights the fact that the only events having hit more than 70% of France occurred after 1940.” How confident can you be that this is a real trend or an artefact of the quality of the underlying data. While 20CR and such reanalysis data are hugely valuable confidence will reduce in time. Just a thought to consider which might be mentioned in the discussion.*

As mentioned previously, no statistical tests have been performed. We will mention uncertainties deriving from 20CR in the discussion (already discussed in Caillouet et al., 2016).

*I dont think there is a need to have so many sub sections in 6.2 – these would be better consolidated.*

Thank you for the suggestion. As this paper covers many subjects, the subsections allow the reader to quickly find a specific item.

*I think it would be more helpful to the reader to have the workflow image and other material in the appendices integrated into the text. This would not lengthen the paper and increase its readability.*

Indeed, thank you for the suggestion, we will integrate this figure into the main text.

*The next generation 20CR gets back to 1850 if I am not mistaken. It would be useful to indicate this here with the potential to extend a further 20 years.*

You're right (even if there is less confidence in 20CR before the 1870s)!

*Minor points*

Thank you for your very attentive reading, your corrections will be taken into account.

*Page 4 line 27 – are these daily observation since gauge commencement?*

Yes, they are.

References

Caillouet, L., Vidal, J.-P., Sauquet, E., and Graff, B.: Probabilistic precipitation and temperature downscaling of the Twentieth Century Reanalysis over France, *Clim. Past*, 12, 635-662, doi:10.5194/cp-12-635-2016, 2016.