

We thank the reviewer for generally positive comments. The reviewer comments are in italics and our responses are in normal font, the proposed text additions and modifications are in bold.

Please note that in the following, “P”, “L” and “SM” stand for page number, line number and Supplementary Materials, respectively.

#Reviewer 2:

The paper is interesting and present significant effort – very detailed dataset of historical and future stream temperature along Loire River basin. I would expect that it can be published after revision. The main concern regarding various parts of the manuscript are presented below.

- 1. Rate and heterogeneity of discharge change during the historical period considering size of the basin seem too strong to be attributed to climate change solely. Some additional information about human impact on the discharge may clarify it.*

Thank you for arising this point. As mentioned in P2L49-50 of the current manuscript, the hydrological and thermal models used here do not consider the influence of water-abstractions and impoundments i.e. simulate natural hydrological and thermal regimes. Therefore, the observed changes can just be attributed to the climate change. The changes in discharge is due to the fact that this basin encompasses an area with starkly contrasting climatic conditions.

- 2. It is not always clear what lower and upper limit of the range mean – “Indeed, 3 %–83% stations (resp. 50 %–100 %) on small and medium (resp. large) rivers had a RMSE < 1°C across seasons (see their Figure S9, bottom panel)”. Is it variation across seasons, sizes?*

We agree. This is across seasons and size. This will be clarified in the new manuscript.

- 3. Does the model considering potential landscape change due to climate change? Are there some estimates how significant this impact can potentially be?*

No changes in land cover/land use was considered for both the hydrological and thermal models. Moreover, as mentioned in P3L84 for future projections, both hydrological and thermal models are run under present land cover/land use while calibrated parameters of hydrological model are kept as for the retrospective simulation. However, we completely agree on the potential impacts of land use/land cover on thermal regimes. In this regard, we are working on another paper in which the influence of different scenarios of changes in riparian vegetation and following consequences on thermal regimes will be assessed.