

Interactive comment on “Can riparian vegetation shade mitigate the expected rise in stream temperatures during heat waves in a pre-alpine river?” by H. Trimmel et al.

Anonymous Referee #2

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General comments

During reading the paper it is difficult to keep the focus/aims of the paper in memory. The overall objective is formulated in the title but in the text the reader will find other (sub)aims at several positions in different sections. The differentiation between objectives and methods is not appropriate. It is hard to follow the central theme of the paper since the structure of the paper is a little bit confusing. The paper includes 4 tables and 4 figures with a lot of information content but this is not represented adequate in the text, especially in the sections “Results“ and “Methods” more clear links between text and figures/tables would be helpful to understand the intention of the paper.

Specific comments

P 1, title: the overall objective is formulated here. See also p 4, lines 22ff “The aim of this study. . .” and p 8, lines 9ff “ The focus of this study. . .” are mentioned in different sections. The reader should find aims and focus of a paper at the beginning of the text to keep the central theme in mind.

P 1, line 13: “and turbulent energy fluxes were analysed”

P 2, line 4: “ play a superior role. . .” please clarify

P 2 line 19: “summer and winter half-year” please clarify- which months/from-to?

P 2, line 22: “ autumn” please clarify- which months?

P 3, line 1: “ Austrian river temperatures. . .” which rivers were regarded – discharge values or other meaningful parameters were helpful. Is the Daube representative for the study area of this paper? Why?

P 3, line 6: “indirect effects of climate change” – is it possible to quantify these uncertainties?

P 3, line 30: “energy loss” – is it possible to assess/quantify?

P 4, line 26: “Sections”. An outline of different sections would be helpful at the beginning of the paper maybe combined with clearly formulated objectives and aims of the paper.

P 5, line 3: “river Pinka”: which type of river represents Pinka compared to others in Austria?

P 5, line 9: “highest temperature increases and . . .reductions. . .” - how much? Please clarify.

P 7, line 11: “flow volume” – discharge

P 7, line 26: “no deep groundwater influence” - means there is one? Significant/insignificant - please clarify

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P 7, lines 27ff: “Tributaries...partly estimated...adding a fixed offset...was supplemented...” is this conform to the state of the art? Or part of model uncertainties?

P 8, line 9: “The focus...” see above

P 8, line 18: “no significant changes in vegetation cover as it was the case in other studies performed earlier in the year” – what does significant mean in this context?

P 9, lines 15-25: Are these lines part of the results or taken from literature (which one?) - please clarify and quantify the mentioned effects if possible.

P 9 line 33: “. . . up to 4.1 °C (Table 2): Why is “max” lower than “20a” (Table 2, P 21)?

P 11, line 8: “incoming solar radiation which”

P 11, line 10: A more detailed quantifiable description of figure 4 is desirable.

P 11, line 11: “Uncertainties...” Model uncertainties should be a section following section 2.3. In the Results-section uncertainties should be discussed referring to the relevance to quantifiable results and the author’s conclusions. Discussions about the model should be conducted before.

P 12, line 12: “is not expected to increase...” – source? Please clarify.

P 12, line 26: “by other studies.” Which studies? Please specify.

P 12, line 27: “For Austrian rivers...” which ones?

P 12, line 28: “An increase...” which scenarios were used? Is the Danube comparable with Pinka referring to the focus of this paper?

technical corrections P 2, line 18 and 20: 15 %

P 5, line 14: 0.46 ms⁻¹

P 7, line 7: 50 m

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