

***Interactive comment on* “Guidelines for depth data collection in rivers when applying interpolation techniques (kriging) for river restoration” by M. Rivas-Casado et al.**

Anonymous Referee #1

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hessd-4-1069-2007

Guidelines for depth data collection in rivers applying interpolation techniques (kriging) for river restoration

Author(s): Rivas et al.

General comments: The authors address the issue of presenting a method which may be applied for a more comprehensive monitoring for river restoration appraisal. They rightly emphasise the importance of capturing variables in space, time and scale. Geo-

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statistical analysis is applied to examine the spatial aspect, descriptive statistics to study the time component and spectral analysis to capture scaling issues.

Obviously, the authors put a lot of work and effort into the statistical analyses and also in writing this manuscript which I definitely would like to acknowledge here. I'm totally aware how much efforts are needed to get a paper written. I also thing there was a very impressive data set analysed.

Unfortunately, I can't suggest the paper being published in HESS as it stands so far. My main concern regarding the paper is that there is hardly any literature cited and considered for a critical discussion of this research subject. In total, there is not one scientific journal paper cited and discussed covering one of the issues addressed in this paper (e.g. geostatistical methods, advantages/disadvantages of different methods, problems of river restoration, aspects of (ecohydrological) monitoring, biological impacts, only to mention few here). There are 5 references, none of them a journal paper, and one is the PhD thesis of the first author (grey literature). The authors also mention on p. 1071 that this paper is "part of series";. This might be the case, but, firstly, these other papers are not cited either, and secondly, I don't see at all, why the paper should be "part of a series" of papers, as it lacks already specific content in this paper (unfortunately!!, as it seems to me that the overall work which was undertaken is very valuable for the scientific community). This lack of references results in an unsatisfying introduction, a missing discussion and overall in a manuscript where a number of relevant literature is not cited and thus, not discussed. This also means that this study is not put into an overall context and deriving the contribution to the scientific community is difficult.

I really do think that the study itself is highly valuable for the scientific community, however, the manuscript needs major revision before being publishable in HESS.

However, as this might be a personal view, if the editor decides the manuscript provides valuable contributions to the scientific community already in its current form and that

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it should be published in HESS, I would still like that the following comments, which I outline below, are addressed (though they might probably not be exhaustive).

Following, I answer some of the specific aspects:

- 1) Does the paper address relevant scientific questions within the scope of HESS? yes
- 2) Does the paper present novel concepts, ideas, tools, or data? Yes, but not clearly presented
- 3) Are substantial conclusions reached? See comments
- 4) Are the scientific methods and assumptions valid and clearly outlined? Valid yes, but not clearly outlined
- 5) Are the results sufficient to support the interpretations and conclusions? no
- 6) Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? no
- 7) Do the authors give proper credit to related work and clearly indicate their own new/original contribution? No, see comments
- 8) Does the title clearly reflect the contents of the paper? No, see comments
- 9) Does the abstract provide a concise and complete summary? In parts, see comments
- 10) Is the overall presentation well structured and clear? No
- 11) Is the language fluent and precise? Mostly
- 12) Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? No, see comments
- 13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No

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14) Are the number and quality of references appropriate? No, not at all.

15) Is the amount and quality of supplementary material appropriate? No, not at all.

Specific and technical comments:

Title:

I think the study is not as transferable as the original title suggest, hence please change to: "An example guideline for depth data collection in rivers applying interpolation techniques (kriging) for river restoration";

or similar...;

Abstract: Please add results, e.g. "results have shown that...";

Introduction: Lacking in references! A number of topic related aspects and issues are not mentioned. This results in that there is no clear thought line how gaps in recent research lead to the actual objectives of this paper. The introduction doesn't give enough of an overview about, e.g., the need of river restoration, difficulties, why is implementation needed etc.. Outline that monitoring is always constraint by technical and financial limitations.

Where is research gap? What are advantages / disadvantages of particular approaches? What is actually new in this paper?

p. 1070, L. 19: there are other studies published on this subject (in addition to Rivas 2006, which is grey literature) p. 1070, L. 19: don't cite workshops, as nobody else than the participants know what was actually discussed at this workshop (is there any workshop outcome?) p.1070, L 26: "little work has been carried out to address" I don't agree with this statement. There are several studies which address the issue of transferable monitoring approaches and problem regarding the implementation of restoration guidelines, considering difficulties in different countries etc. p. 1071: L.1: "this paper is part of a series" so, what are the other papers? Why several papers on

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same subject? p.1071, L. 27-30: copy into method section p.1071, L. 23: formulate objectives of THIS study clearer.

Data p.1072, L. 22: where are these physical characteristics described and discussed?, What is the rationale behind choosing a particular site? p. 1073, L. 2 "a wide range" ranging from? For example?? p.1073, L. 27: rationale for choosing these discharges? They are not standardised hence not really comparable for different catchments.

Methodology Explain clearly reasons behind choosing particular methodologies. What are disadvantages / advantages of particular methods? In addition, it seems to me that parts of the result section would fit better in method section (see comments below).

Results A lot of the results a general statements (see some examples below) without any specific meaning or conclusion. Try to be more specific about the results in this study. Also results shown in figures and tables are not really explained in a clear way. I also find the section titles very misleading in the result section, or rather, the sections don't really contain the relevant results (particularly in the subsection "temporal pattern analysis")

p. 1078, L. 35- p. 1079, L.6: probably better in methodology section p. 1079, L. 23-24 "Thus, it could be observed that different sampling densities should be applied for different sampling objectives (indicators)". Yes, of course! This really is nothing new! But give clear examples what is meant with "different sampling densities" or "different sampling objectives" For example?? p. 1080, L. 1 - 5: should be in method section

Discussion Discussion section is totally missing, which is probably not surprising as not much other literature was searched regarding similar studies or applications (which do exist, for example (to mention only few), with regards to river restoration in general (and how this is approached in different countries), sampling strategies, statistical analyses etc). The paper would highly contribute from such discussion where the results of this study are put into context of similar research and other findings.

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References: Totally inadequate references list (Several recent publications not considered, thus, not discussed)

Table 1: Lowflows 2000??/ unit? Standardise discharges

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 1069, 2007.

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4, S1118–S1123, 2007

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