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Hydrology and Earth System Sciences
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Discussions

Interactive comment on "Is sinuosity a function of slope and bankfull discharge? – A case study of the meandering rivers in the Pannonian Basin" *by* J. Petrovszki et al.

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General comments

The overall quality of the paper: The paper analyses the sinuosity of the rivers in Pannonian Basin using pre-regulation situation. It describes the problem of sinuosity in depth. However, from my point of view the main problems are:

- unclear description of the studied theme at some parts, and

- weak conclusions.

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Interactive Discussion

Discussion Paper

In introduction is a review of previous findings with the theoretical developments. In the Data and method section the sinuosity calculation is descripted on the basis of historical maps (?). The slope and discharge values were corrected in case if they were alluvial or bedrock controlled. Then the problem of the bankfull discharge calculation was described. The next problem is calculating the natural slope of the rivers, which additionally depends on meandering. The main data sources were 2nd Military survey maps. The next problem is interpolation methods and the last regression function used to describe sinuosity according to channel slope and discharge. In the results and discussion section the models of sinuosity are described together with the graphs in figures. The conclusions section mostly is a short resume of the results of the work.

The description in the section “Data and methods” is quite unclear at many points. I suggest more detailed description, possibly with support of some visual material, if possible. On the other hand, the “Introduction” section could be shorter. In the section “Data and methods” are quite often described applicative solutions connected with Pannonian Basin. You may more focus to the methods and then explain a detailed solution in the section “Results and discussion”. Conclusions are not clear: For example they do not explicitly answer to the question in the title.

Specific comments

In the “Data and methods” section an overview map will be appreciated. There are many geographical terms of Pannonian Basin in this section, e.g. river Olt, Tisza, Great Hungarian Plain, which need to be mapped. I suggest improving the Figure 1a.

Abstract: Remove references.

Section 1.1:

- Change the title: Changing slope – changing sinuosity -> Slope and sinuosity

- “. . .sinuosity at least 1.3. . . .”: short definition/description/principles or formula is needed – for example, how to calculate the sinuosity

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- “. . .In this section, the river is not a self-organizing system but belong to the range of unorganised meandering (Timár, 2003). . . .” In which section? Did you want to say: “in this paper”?

Section 1.2:

- “. . ., at different patterns . . .”: Define this kinds of river patterns. What kinds of pattern do exist for?

Section 2.1:

- It is written that the last natural channels can be detected on the map sheets of the 2nd Military Survey. Did you use these maps?

Section 2.2:

- It is not clear how the data of Viczian and Loaszloffy were combined

Section 2.6:

- You wrote that different interpolation methods were tested, but which are these methods in relation to the finally selected one?

- What is a colour scale? Did you mean hypsometric colouring or so called height coding technique?

Section 4:

- You mentioned a RMS error of the model that remains under 15

Figures:

- The references to the authors and other figures in the descriptions are not needed – you put most of them already in the graphs or in the main text.

- In the Figure 1 you can delete the sentence: “The different colours mean different rivers.”

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Technical corrections

The English grammar needs further improvement.

Figures: The text is too small to read, and the graphs too.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 12271, 2014.