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Hydrology and Earth System Sciences Discussions

Interactive comment on "Optimisation of LiDAR derived terrain models for river flow modelling" *by* G. Mandlburger et al.

Anonymous Referee #1

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General comments:

This paper is a very good contribution to an important topic of hydrologic modelling. It lies within the scope of HESS. The paper presents partly new concepts, some aspects had been publish earlier. Detailed and substantial conclusions are reached. The presented methods are mostly explained clearly (cf. 2.) and allow their reproduction. The results are sufficient to support the conclusions. Proper credit is given to related work and it is clearly distinguished from the own contributions. Also the number and quality of the references is appropriate. The title reflects the contents of the paper and the abstract provides a complete summary. The paper is well structured and easy to read. The mathematical formulae are correct and all variables and indexes are explained. A

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Interactive Discussion

Discussion Paper

few parts of the paper should be clarified (cf. 2. and 3.) but not reduced or eliminated.

Specific Comments:

In chapter 4.2, page 3615, lines 20 ff: where come the optimum values from ?? theoretical ? empirical ? Experience ?

In chapter 4.2, page 3615, chapter 6, page 3620: how “quadrilateral surface elements” look like ? The 4 points have to lie on a plane ? are these elements rectangular ? may be an additional drawing or figure could be helpful for better understanding.

In chapter 7, page 3622: Obviously the are reported floods available. Why these reported data have not been intensively used for comparison with simulated data by the proposed method or for calibration of the method (it is only mentioned but not explained in detail: how far away are your simulated results from the observed values etc.).

Technical Corrections:

In chapter 4.1, page 3613, line 13 end: the hyphenation “... dec-imation ...” sounds strange

In chapter 4.2, page 3615, line 20: “... angles of less than $<$ 10 ....” seems to be double defined

In chapter 5, page 3618, line 3 (formula (4)): what is $\nu 0$? Is it a constant, e.g. basic viscosity ?

In chapter 6, page 3619, line 25 ff : it may be a little bit confusing, if your geometries (a) and (b) are named just as the sub-figures (a) and (b) of figure 4–7. Another notation (e.g. geometry I and II or others) would increase the readability.

Figure 2: sub-figure (b) and (c) seems to be too small and should be enlarged, if necessary in separate figures

Figure 4–7: in my pdf-file the captions are missing ?!

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Figure 5–7: the size of the figures seem to be too small to recognise any details. If possible, these figures should be enlarged.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 3605, 2008.