

## ***Interactive comment on “Process-based distributed modeling approach for analysis of sediment dynamics in a river basin” by M. A. Kabir et al.***

### **Anonymous Referee #2**

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#### Overall Comments

This paper describes a relatively simple but effective methodology to analyse sediment dynamics in a river basin. As the model has been successfully tested two different climate conditions, I believe it would be a useful numerical tool for the potential application in different regions of the world. As submitted, there are some minor issues that need to be addressed before it could be ready for publication. I recommend accepting this paper with MINOR edits.

Comments:

C2759

C1: Page-5686: Abstract I suggest re-writing the abstract starting with a sentence that describes the main issue of this paper [for example the issue for this paper could be: ‘This paper presents a process-based .....] followed by method, major findings and the main conclusion [i.e. implication of those results]. Delete Line 2-7 and line 25-26. C2: Page-5689, Line 24 The word ‘suitable’ should be replaced with ‘appropriate’ C2: Page-5692, Line 14-15 ‘In this modelling approach’ is repeated. It is not needed in line 14. C2: Page-5692 Equation (3) need to be mentioned in the text. C3: Page-5692, Some symbols are not defined but some are defined more than once. Need to check all through the paper C3: Page-5693, Line-4 Delete ‘0.9 to’ C3: Page-5693, Line-15 ‘Derived by Parsons’- Need reference for this. C3: Page-5694, Line-23 Delete ‘also’ C3: Page-5695, Line- 15 The word ‘surface grid’ is not appropriate. You can replace it by ‘land grid’. C3: Page-5695, Line- 26, 27 Rewrite these two lines. For example ‘We used ArcGIS 9.3 to generate .....’ C3: Page-5697, Line- 9 Rewrite the sentence as ‘Measured hourly water height and sediment concentration data are available.....’

C3: Page-5697, Line- 9 1-h time step for 500 m grids seems large. Please check Courant condition carefully. C3: Page-5697, Line- 24 Add a reference that justifies using constant runoff coefficient.

Comments on Tables Table 2: It is actually not needed. Instead you can refer the paper that describes model development. Table 3: Same to previous comment. Table 5: Use sentence case for the title of the Table Table 6: 4th column: replace Manning with Manning’s n and replace (n) with (-) Table 7: This information can be described in the text. Table 8: This information can be described in the text

Comments on Figures Figure 3: You can refer the relevant paper instead of adding the Figure. Figure 4: Same to previous comment. Figure 7: Rainfall bar chart at the top is not needed. Figure 8: You have used n for Mannig’s n. Here you can use N Figure 18: Rainfall bar chart at the top is not needed. Figure 19: Rainfall bar chart at the top is not needed.

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Please use uniform font for axis title and decimal point for all relevant graphs.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 5685, 2010.

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