Hydrology and Earth System Sciences Discussions

Interactive comment on "Sediment yield model implementation based on check dam infill stratigraphy in a semiarid Mediterranean catchment" *by* G. Bussi et al.

Anonymous Referee #3

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Comments:

1) A major comment is that the model performance is highly dependent ton the STEP model implementation into TETIS. It is unbalanced to provide 2 pages of information in M&Methods on the TETIS model equations (a model already published) and not include a similar level of detail on STEP. This should be revised to provide your colleagues with a more clear description of the model used.

2) It is unclear how the C and K values were generated and their actual values in the model calibration. I would suggest complementing Figure 3 with a Table indicating the

C and K values distribution (e.g. average, stdev . . .) and units, as well as the change of during the "window of disturbance" mentioned in page 3436.

3) A minor detail in page 3437, accuracy of the GPS used.

4) It is unclear why such a key variable such as the dry bulk density of the infill deposit (page 3441) was estimated from a procedure from 1943 and not measured, or at least the estimations validated, in the profile descriptions of the sediment area within the check dams during the pit excavations.

5) In the sediment yield evaluation, I misses the use of the same index (Nash-Sutcliffe index) used to evaluate the performance of runoff predictions. This, or a different index indicating why is not the NSE, should be used to improve the evaluation of the model performance presented in Figures 11 and 12.

6) Since there is not indication of textural distribution of the topsoil in the catchment, it is very difficult to interpretate the discussion in the first paragraph of sediment yield (3.4) and some other parts of the manuscript. This information should be included in section 2.2. (Study area).

7) The manuscript, for not been a review paper, seems to be over referenced (76).

8) The English use in the manuscript, albeit good and understandable, presents some structures that should be revised by en English native speaker. I can identify some of these structures as probably non-correct, but since I am not a native speaker I can not correct with confidence those sections.

Best regards,

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