

Interactive comment on "Itzï (version 16.8): An open-source, distributed GIS model for dynamic flood simulation" by Laurent Guillaume Courty et al.

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Specific reply to Anonymous Referee 2

We would like to thank referee 2 for their constructive comments. Below are the specific replies to each comment. Attached is a document showing the changes to the original manuscript resulting from the answers to referee 1 and 2.

Page 2, line 12: "environments" should be "environment".

Done.

Page 5, line 7-8: I suggest rewriting the line starting "Following the proposed..." to

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clarify the meaning.

The sentence has been clarified.

Page 5, section 2.2: I suggest you use a different symbol for flow calculated at cell interfaces. The authors use n here and then later in manuscript n is used for Manning's n.

n is used throughout the manuscript to describe the Manning's n, and q for the flow. The sentence in question has been reformulated to clarify the symbols usages.

Page 9, line 6: What are the values of roughness coefficients used? Maybe include in Table 1.

Those values have been added in the text.

Page 12, line 4: I suggest using a different word than "handy". Slight colloquial term.

Done.

Model Verification: The manuscript is missing details on the model simulations. How long did the simulations take? On what type of CPU? Do mass and volumes errors get calculated per timestep? If so what are these values? The additions of these details would benefit the manuscript.

Explications of the volume error calculation has been added to the numerical scheme description. To make clearer the values exported by the model, we added a listing of the map time-series that can be output by Itzï. Those include the volume error. However, the version 16.8 of the software described in the first submitted manuscript was suffering from a bug in the volume balance reporting. This bug has been corrected in the version 17.1, which has been published in January this year. Therefore, we decided to change the described version to the last published one, the 17.1. All the results presented in the paper have been updated to reflect the new software version. Furthermore, instead of presenting two simulations that give almost equal results for the test case of Hull, we decided to simplify its presentation by describing only one simulation that includes non-uniform values of friction and drainage capacity. The volume balance errors have been added to the manuscript for this test case.

The computation time of the Hull test case has been added as well. We understand that it could give and indication to the reader about the current version of the model. However, it should be noted that this value is almost impossible to reproduce due to the high number of software and hardware factors that influence the computation time. Moreover, because of the limited domain size of the other test cases, we do not think that providing their computation times will add value to the manuscript. For instance the analytic test cases run in less than 3 seconds each and the EA test 8a in about 1.5 minutes.

Please also note the supplement to this comment: http://www.geosci-model-dev-discuss.net/gmd-2016-283/gmd-2016-283-AC2supplement.pdf

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Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-283, 2016.