

Interactive comment on “Small farm dams: impact on river flows and sustainability in a context of climate change” by F. Habets et al.

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Received and published: 19 December 2013

The paper on the modelling of small dams effect on inflow in France is interesting and handle correctly the issues inherent to modelling small reservoirs that are not present in statistics.

Overall, the paper is well written, cites appropriately existing literature and present interesting results and methodologies.

There is a major issue, however, on methodology description.

Indeed, an element of the methodology remains unclear, namely, whether the water collected by small dams is only the runoff from precipitation or also rivers runoff for

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river going through the cell. The description of the methodology seems to imply that only the runoff from precipitation is collected by the small representative reservoir, but since it is also said that water from rivers is used, it remains unclear.

A sentence says: The small farm dam module was connected to SIM with a daily time step by collecting both the simulated surface runoff and infiltration (Fig. 2). But at other places, there is a reference to water from rivers being collected. This should be stated more clearly.

Another related issue is that what determines the quantity of inflow is collected by the representative dam is never clearly said. My understanding is that the share of cell covered is translated to a share of inflow collected, but it is not said anywhere, or not clearly enough.

Also there are reports of significativity all over the paper, it is unclear to me how it is computed. It would be relevant to explain it formally once.

Minor comments:

On p 9 first paragraph, the reference of the next sentence is unclear: Only a quarter of this volume was stored in dam reservoirs larger than 2000 m³ (about 180 dams).

In 3.1, it could have been relevant to include the existing 0.186% of small dams already existing. My understanding is that they are not included, maybe a word explaining why they have not been added for the evaluation could be added here.

p 11 second paragraph explanation of figure 6. There is a mismatch between the figure with a 0.2 and the text with 20%

p 12, 4., second paragraph, for the Seine, and maybe Loire basin, the presence of aquifers could be mentioned.

p 15 second paragraph, in 5.2, near "and they are not affected by the same regulation on the filling period.". This is a bit unclear. Is the regulation of farm dams different or

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the regulation of water more generally (because of hydroelectricity, probably)?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 14391, 2013.

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