

Interactive comment on "A coupling of hydrologic and hydraulic models appropriate for the fast floods of the Gardon river basin (France): results and comparisons with others modelling options" by O. Laganier et al.

Anonymous Referee #2

Received and published: 15 October 2013

Review of the paper by Laganier et al, 'A coupling of hydrologic and hydraulic models appropriate for the fast floods the Gardon river basin (France): results and comparisons with others modelling options'

This paper proposes the coupling of a hydrologic model and a 1D hydraulic model to simulate flash flooding. The paper is generally well written, although in some places the English could be improved. In my opinion, it sits within scope of NHESS.

I think the paper may be publishable after some major revisions, primarily as to where

C1444

the novelty of this paper really lies and also I would have hoped to see a more detailed analysis of the comparison between the different modelling approaches, which to my mind, is the innovative part here.

My main concern is that the proposed coupling is offline and thus straightforward and quite simple in the sense that no linked feedbacks exist between the hydraulic model and the hydrologic model. Such dynamic coupling might be crucial especially in events like flash floods where backwater effects and lateral inflows are often significant. An external coupling as proposed here will miss this.

How innovative (novel) is this offline coupling? Is it to get away from the simple hydrologic routing which in high flood events is highly questionable or is it the comparison to other modelling methods? Or both? I feel that this needs to be clearer at the start and more detail analyzing and discussing whatever element it is, would be beneficial to the paper.

Having said that I really like the approach the authors took to compare the benefits of coupling to other modelling approaches using only some form of models or/and omitting additional inflows. I wish this would have been more the focus of the paper.

The NSE values are low, even negative for some events; why? Is this to be expected for these type of events? Could this be linked to the calibration values and the propagation velocity that is event-adjusted? More details need to be given here.

The conclusions are only true to some extent. For example looking at figure 7 it looks to me as if for some events at some stations, the performance of the coupling might be less than omitting coupling? This should be explained in detail.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 4635, 2013.