

Interactive
Comment

Interactive comment on “3-D-numerical approach to simulate an avalanche impact into a reservoir” by R. Gabl et al.

Anonymous Referee #2

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General comments:

The Authors present an interesting and relevant 3D numerical study of snow avalanches impacting into a reservoir including the generation of impulse waves. A new approach is introduced involving the replacement of the snow avalanche with a water avalanche to overcome some limitations of the commercial code FLOW-3D. The new approach is then applied to an idealized geometry and the impulse wave features are compared with the established empirical equations of Heller et al. (2009) with a surprising good agreement. This comparison also involves the variation of the three parameters the water depth, freeboard and the reservoir width.

The topic fits well within the scope of NHESS. The agreement between the numerical

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results and the empirical equations is generally very good (e.g. a very good agreement in Fig. 5 and 8 is achieved) given that the method of Heller et al. (2009) intends to give preliminary estimates only. The variation of the reservoir width is one of the most valuable results and contributes to the perhaps most significant unknown on generic landslide-generated impulse wave research, namely the effect of the water body geometry. The Figures are also well presented. The new modelling approach of the avalanche is interesting, but raises some questions detailed in the attachment. The waste majority of my points below concern minor (grammatical) points, which may be resolved easily in this review process (see list “Suggested grammatical corrections”) and only a very small number of the comments in the list below need more work and attention.

My overall recommendation is that the “Specific comments”, “Technical corrections” and “Suggested grammatical corrections” in the attachment should be addressed.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/3/C1837/2015/nhessd-3-C1837-2015-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 4121, 2015.

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