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Discussions

Interactive comment on "The Lituya Bay landslide-generated mega-tsunami. Numerical simulation and sensitivity analysis" *by* José Manuel González-Vida et al.

Anonymous Referee #1

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The paper deserves to be published for 2 reasons: - the paper is a good review of the 1958 event - the simulation attempts at modelling this event and the authors provide landslide parameters for reproducing the inundation

My main criticisms:

- I do not understand how to justify the initial velocity of the landslide (80m/s or 280km/h !!). Line 14 (5.1/Landslide setup) What are the references to justify such a velocity? In my opinion, the landslide model should reproduce the the landslide velocity from rest to the end of landslide. Otherwise, why do the authors model the landslide ? The justification of the authors (line 15) : "with this initial condition, the model reproduces

both the runup and ... a giant wave" is not valid in my opinion.

-There is no references in the literature to justify the 3 parameters for reproducing the water waves (the friction angle (alpha) , the ratio of densities (r) and the friction between layers (mf)). The authors have to cite references in particular on the friction angle.

- Friction of water : do the authors model this friction? I do not find the value of the friction coefficient. The authors have also to justify the choice of this coefficient or to discuss it.

- Sensitivity tests: "hundreds" of simulations have been performed according to the authors. At least, 3 graphs have to be added to show the influence of the friction angle, r and mf. Without these graphs (or tables), results are not seriously discussed.

- the authors have to justify the use of a nonlinear shallow water model. In this particular case, is it valid to neglect the vertical acceleration of water? in the generation area (in the Gilbert Inlet) and in the propagation area (in the Lituya Bay)?

- the introduction is lengthy. Some phrases are redundant and have to suppressed

Minor corrections: - the volume is not 31 km3 but 31 Mm3! (line 31/ Background) - check how to cite papers in the manuscript (for instance, p9 line5, p11 line 14 , ...) - a few spelling mistakes (for instance, p22 line17 : achieved/ p22 line 8 : other/p13 line2 : has/p12 line13: reflections/p5 line 28 order of/)