

# ***Interactive comment on “Reproducing pyroclastic density currents deposits of the AD 79 eruption of the Somma-Vesuvius volcano using the box-model approach” by Alessandro Tadini et al.***

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The submitted manuscript is an excellent contribution toward making advances in numerical volcanology, accounting for necessary inputs from the field, as done in the present worked example; it definitely deserves publication, in my opinion after minor revision. Three points could be further considered in the revised version of the manuscript, which are the following: 1) It could be clearer why the well-known box model approach has been adopted, considering recent advances in 3D numerical volcanology, even experimentally-validated or field-constrained? (see Sulpizio et al., 2014\_JVGR for a review) It is stated in some parts, and I agree with Reviewer 1

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(<https://doi.org/10.5194/se-2020-138-RC1>) that such choice could also be introduced from the very beginning; 2) The box model for sedimentation in entraining density currents of Andrews and Manga (2012)\_JVGR could also be considered in the discussion; 3) Agreed with the definition of inertial currents in the present worked example, as a new unconventional terminology appeared eight years ago in volcanology (see Giordano and Doronzo, 2017\_Sci. Rep., and the introduction of de' Michieli Vitturi et al., 2019\_Geosci. Model Dev. for a review); the original referenced terminology could be considered. Best regards Domenico M. Doronzo

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