

Interactive comment on “r.avaflow v1, an advanced open source computational framework for the propagation and interaction of two-phase mass flows” by Martin Mergili et al.

JK Kowalski (Referee)

kowalski@ices.rwth-aachen.de

Received and published: 25 October 2016

The manuscript *r.avaflow v1, an advanced open source computational framework for the propagation and interaction of two-phase mass flows* describes a GRASS integrated software framework for the simulation of gravity-driven mass movements. Its underlying mathematical model and corresponding numerical solution are content of the author's previous work. In this manuscript they focus on details regarding the integration of the numerical solution algorithm with a GRASS GIS environment, as well as additional functionalities that are needed when wanting to validate the simulation model with data. Performance and software framework are demonstrated during two test cases, one being different scenarios of a complex landslide in a synthesized

C1

topography, the other being the re-analysis of a New Zealand rock avalanche. The manuscript concludes with a discussion of necessary next steps and an outlook. Generally, the paper is well written and easily comprehensible. It addresses the need for software frameworks that can be used to validate state-of-the-art mathematical models against field observations. Though *r.avaflow* isn't fully validated and ready to use in a predictive regime, the general approach and software solutions presented by the authors are a valuable contribution to the community. I do have three major comments and some minor objections, which are detailed in the attached PDF.

Please also note the supplement to this comment:

<http://www.geosci-model-dev-discuss.net/gmd-2016-218/gmd-2016-218-RC2-supplement.pdf>

Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-218, 2016.

C2