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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "TITAN2F: a pseudo-3-D model of 2-phase debris flows" *by* G. Córdoba et al.

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article Dear referee,

Thanking your suggestions, we modified the paper to adjust it accordingly. However, in the attached pdf file some sections appear in german. This is a bug in the copernicus .cls latex class, which is fixed once compiled by the Copernicus staff.
The list of changes are:

- typeset reviewed

- spell checking done
- Improved differences with Pitman and Le (2005) put into a separate section
- A plot is added to explain how we deal with the volume fraction changes and its relationship with Kap
- New section about numeric added.
- In the section Introduction, we explain the shortcomings of Pitman and Le model that we want to address, and the fundamental idea of our work.
- We explain that some of the new parameters are fixed within the program, and that we only need the location, volume and initial concentration, instead of the basal and internal friction angles.
- The redaction of sections 2.1 and 2.2 has been modified
- A note about the validation and verification added to explain that most of the test are done in 2D.
- All the minor objections has been addressed.
- The section about fluid stresses was expanded to give stress the differences with Pitman and Le model, and to a better understanding
. - Appropriate references are now given to explain the depth averaging.
- It it explained now that the particles fraction is limited to a maximum pack concentration, in order to ensure that the drag equation never reach infinity.
- About the variable names: we add a note explaining that we prefer to follow the same notation of Savage and Hutter (1989). We explain more clearly the meaning of each variable.
- About P3802/L5: We disagree. As we understand, fully saturated flow refers to underground flows.
- Figures and caption suggestions has been addressed.

Unfortunately, due to the deadline, I could not include a nice result of our modeling of a lahar in Popocatepetl volcano. However, if Copernicus agrees to give me a bit of more time we can add such results and include a section about nomenclature

Thanks again,

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