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Discussions

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Interactive
comment

Interactive comment on "On the mechanical behaviour of a low angle normal fault: the Altotiberina fault (Northern Apennines, Italy) system case study" *by* Luigi Vadacca et al.

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I find noteworthy and promising the application of this kind of numerical modelling to the Alto Tiberina Fault system that in the past years has been massively studied by means of more geological and phenomenological, approaches. The joint exploitation of these two "investigative philosophy" should allow for deeper and more robust insights on complex seismotectonic systems like this.

As the authors likely know, their work cannot be considered conclusive until a more detailed fully 3D analysis has been completed. Nevertheless, I agree that a 2D approach is a suitable intermediate step the results of which could constitute a robust working foundation for a more complex 3D analysis. In this respect, I think that, taking advan-

tage of the relatively minor computational workload represented by a 2D approach, the authors could extend the present analysis trying and implementing a sort of sensitivity analysis on their 2D results. Actually, the main result of the work, namely that the GPS velocities in the studied area cannot be explained without including the ATF contribution to deformation, is pretty robust and somewhat granted just looking at the peculiar GPS velocity field. Nevertheless, under what circumstances this conclusion could be weakened? Just given the robustness of their conclusions, it will be quite useful if the authors try and answer (from a numerical modelling point of view) to the previous question.

As a specific point, it is not clear to me the rationale of model 4B: what should be its geological/seismotectonical interpretation?

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