

Interactive comment on “Multistable Slip of a One-degree-of-freedom Spring-slider Model in the Presence of Thermal-pressurized Slip-weakening Friction and Viscosity” by Jeen-Hwa Wang

J.-H. Wang

jhwang@earth.sinica.edu.tw

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Prof. Spray addressed an important problem about the AUD model. This model is simple and corresponds to a homogeneous simple shear strain at a constant normal stress on a spatial scale of the sheared layer that is broad enough to effectively preclude heat or fluid transfer. Actually, it cannot completely represent the whole behavior of thermal pressurization (TP) and is only an end model of TP model. Unlike the slip-on-a-plane (SOP) model, the AUD model allows varying velocities during faulting and there is a sheared layer, which is comparable with a real fault, even though it is not related to displacement. Meanwhile, Rice (2006) has provided a well-defined equation to describe

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the AUD model. This will be easier for me to perform numerical simulations.

This study is just the first step for me to investigate the effect caused by thermal-pressurized friction on earthquake ruptures. This will educate me how to handle and understand the thermal-pressurized effect. My next step will apply the comprehensive TP model proposed by Rice (2006) to one-body and many-body spring-slider models to explore thermal-pressurized effect on earthquake ruptures.

Could you let me know, if you assume that I have not yet completely answered your question? I will try to say something more.

Thanks for your "minor edits" in the PDF file. They are useful for me to improve the manuscript.

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