

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC3
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Comment on nhess-2022-1

Anonymous Referee #3

Referee comment on "Fault slip potential induced by fluid injection in the Matouying enhanced geothermal system (EGS) field, Tangshan seismic region, North China" by Chengjun Feng et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-1-RC3>, 2022

In this paper the authors evaluate how the main active faults might respond to hypothetical injected-related pore pressure increases during production in the Matouying Enhanced Geothermal System field. They performed both probabilistic and deterministic analyses of fault slip potential. In my opinion the paper should be considered for publication if the authors could address the following comments in addition to those already provided by referees #1 and #2:

1) I suggest to use the thermoporoelasticity equation instead of the simple elasticity equation (eq. 1 in your manuscript) to evaluate the critical shear stress. This will help you to consider also the effect of temperature changes on stress, in addition to your different injection scenarios, in a more comprehensive way with respect to what you did in section 8.3.

2) It would be interesting if you will consider (and discuss) also other commonly accepted models to estimate the expected maximum magnitude (e.g., Shapiro et al. (2011), Van der Elst et al. (2016)).

Additional minor comment:

- At line 19 of the Abstract I suggest to substitute "Enhanced Geothermal Systems (EGS) field" with "Enhanced Geothermal System (EGS) field"