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# Comment on nhess-2022-1

Anonymous Referee #2

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-RC2, 2022

The paper by Feng et al. discusses the seismic hazard related to fluid-injections in the Tangshan region, North China. The authors evaluate the fault-slip potential of regional faults as a response to fluid-injections in the Matouying enhanced geothermal field. They use the available focal mechanisms to perform stress tensor inversions and to define the ambient stress field, as combined with in-situ stress measurements from regional boreholes. Then by using the Mohr-Coulomb failure criterion, they perform a risk assessment for induced seismicity as a response to various injection scenarios in the Matouying EGS. Overall, the paper presents some interesting insights on the seismic hazard related to the development of EGS in North China, is well-written and should be considered for publication. There are a few points listed below, however, that require some further clarifications and possibly revisions.

1) The focal mechanisms dataset used for the inversion should be provided as a table in the supplementary material.

2) There are too many sections and figures in the manuscript. Some of the sections can be combined, as for instance sections 3, 5.1, 6.1 combined in a methodology section and sections 5, 6 and 7 in a broader results section. Some of the figures can be transferred to the supplementary material, or provided as insets in other figures (e.g., Fig.9 as inset of Fig.8).

3) In the local scale of Fig.13, the authors display several faults in the vicinity of the MTY EGS that are not displayed in the regional maps (e.g., Fig.11). Discuss the reason and perhaps provide local scale figures as insets in the regional maps to reduce the number of figures.

Some minor comments related to the text concern:

1) Page 1, Line 34: define the abbreviation “FSP”.

2) Provide the definition of $\mu$ in Eq.(1).

3) In Page 9, Line 32, the numbering of the referred equations is probably wrong.

4) Replace 2030 with 2040 in Fig.11b or replace with the correct figure.

5) Correct the first word in Page 16, Line 1.