Dear Reviewer01,

Thanks for reviewing our manuscript. We all agree with you completely. We will revise our manuscript based on your helpful comments after interactive discussion.

1. In Section "4.1 Stress field inversion from earthquake focal mechanisms" on page 5, it would be better if the authors could provide the focal mechanisms data in the supplement.

Response 01: We will provide the focal mechanisms dataset used for inversion in the supplementary materal in our revised manuscript.

2. In Section "5 Initial fault slip potential in Tangshan seismic region in the present stress field" on pages 8 and 9, if the deterministic geomechanical assessment ignores multiple sources of uncertainty, and if the probabilistic geomechanical assessment is more robust and accurate, is it important to also present the deterministic results? If the deterministic assessment provides compelling or useful information, consider adding more information into the paper as to why this information is relevant. Otherwise, consider removing the deterministic analysis from this paper.

Response 02: The deterministic assessment should be still necessary. Before we estimate the fault slip potential on mapped faults in the Tangshan seismic region, the deterministic assessment may provide deterministic fluid pressure to slip. Then, we will comprehensively know much about the initial stability of these faults, and mainly discuss the effects of fluid injection on these faults that may have higher fault slip potential in response to smaller fluid pressure perturbations.

3. In Section "6.1 Hydrology model" on page 12, whenever you mention the simplifying assumptions of a method, consider adding some commentary as to

whether these assumptions are appropriate or not in the MYT EGS field? Please clarify.

Response 03: The MTY EGS field lies in the gneiss that are well compact and intact with the porosity of less than 6%, and there are fewer pre-existing fractures at the depth interval of 3965-4000 m. Therefore, the Hsieh and Bredehoeft's hydrology model should be appropriate for the MTY EGS field.

4. In Section "8 Discussion", I suggest that the authors should also discuss the effect of porosity on the fault slip potential in the MTY EGS field.

Response 04: We have published a paper titled "Changes in Fault Slip Potential Due to Water Injection in the Rongcheng Deep Geothermal Reservoir, Xiong'an New Area, North China" (Water, 2022,14,410, https://doi.org/10.3390/w14030410). In this paper, we discuss the effect of porosity o the fault slip potential (FSP) values, and our results showed that the FSP values do not have obvious changes with increasing porosity. However, in this manuscript, we will calculate the effect of porosity on the FSP values on the mapped faults in the MTY EGS field again in our revised manuscript later.

5. In Section "8.4 The predicted maximum magnitude of injection-induced seismicity in MTY EGS field", what is your explanation for the discrepancies in the Galis and McGarr model results? What are the strengths and weaknesses of these two models?

Response 05: In our manuscript, by comparison, we find that the maximum magnitudes of the injection-related seismicity estimated with the Galis model are slightly greater than the values by the McGarr model. We find that the maximum magnitudes of the injection-related seismicity estimated with the Galis model are more similar with the observed earthquked in the Renqiu oil field, North China. Besides, we 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)) in our revised manuscript later.

6. In Section “8.4 The predicted maximum magnitude of injection-induced seismicity in MTY EGS field”, whether the predicted maximum magnitude of injection-induced seismicity would be larger or smaller than that of the largest natural earthquake with a magnitude in the MTY EGS field? Please make some comparisons.

Response 06: As shown in Fig. 19d, when the accumulated net injected volume is larger than 5000 L and the 5 fluid loss is 40%, the predicted Mw slowly increases from M_w 3.3 to M_w 4.0 with the McGarr model and from M_w 3.6 to M_w 4.7 with the Galis model. For 40% fluid loss, the maximum M_w of an injection-induced earthquake in the MTY EGS field is M_w 4.7, that is more smaller than the natural earthquake in the Tangshan seismic region (e.g., 1976.7.28, M 7.8). We suggest that the maximum magnitudes of the injection-related seismicity in the MTY EGS could be no more than M_w 6.0.

7. In Figure 11, Fig.11(b) should be the probabilistic fault slip potential on the mapped faults in response to the hypothetic fluid injection in 2040, rather than 2030.

Response 07:We will modify this error in our revised manuscript later.

8. Regarding the paper organization, there are too many sections, and some of them could be combined. For example, Sections 2 and 3 could be combined as a background section; Sections 5, 6 and 7 could also be combined.

Response 08:We will combine some sections together in our revised manuscript later.