Reviewer #1:

Manuscript entitled „Interpreting the cause of bound earthquakes at underground injection experiments" by Ryan Schultz, Linus Villiger, Valentin Gischig, and Stefan Wiemer is well designed with clearly presented scope and reasoning. It deals with important topic of the determination of maximum magnitude for injection experiments, which pose important insight into physics of the earthquakes induced by fluid injection and further any other seismicity related to fluid-rock interactions. Methods are clearly described as well as data used for the estimations. Reasoning is documented well with the former works of various authors. I have one major critical comment related with methodology and some minor comments related with the literature review and technical.

We thank the reviewer for their comments and positive outlook on our paper! We are more than happy to address the major/minor critiques of the reviewer.

Major issue, which may need some explanation is sensitivity of the CAP test to magnitude range. There is 2-3 magnitude unit span between the smallest and the largest events and even smaller when we consider completeness. I would like to see any discussion about the magnitude range on the CAP tests efficiency in cases used here. Authors only discuss the role of the events number in datasets suitable for the tests.

For this point, we haven't provided much for sensitivity tests in this paper, since this concept has already been extensively tested on synthetic data. The largest factor contributing to the resolvability of M_{MAX} is the degree-of-truncation. We define this term and point to its importance on Lines 169-186.

We note that the span between smallest/largest magnitudes is not a significant factor for determining M_{MAX}. Sometimes, having more small events can actually be detrimental to resolving M_{MAX}, since these events don't sense the GR-MFD roll-off very well.

That said, we have added a citation to a newer paper [Schultz, 2026] that also demonstrates these points methodologically – to try and be clearer for future readers who have similar questions.

In the Introduction authors refer to different maximum magnitude estimation methods, however not mentioning any Bayesian methods (Kijko, 2025) or methods dealing with small catalogs or

incomplete catalogs (eg. Kijko et al., 2021, Vermuelen and Kijko (2017)). I think, that taking into account above works may be informative for reader interested in dealing with seismic catalogs with narrow magnitude range and/or small event number.

We thank the reviewer to pointing us towards these works! We have now added a citation to the 2025 paper on Line 72.

Minor technical remarks:

Line 78 and below: Acronyms such as CAP, KS, MLE and EW should be explained as they are introduced.
Similar to the comment from Reviewer #2, we have defined the KS, MLE, & EW acronyms at this point in the paper now.

Line 868: All the symbols from equation should be explained here again. Some are introduced earlier (but not all), and it may be hard to follow for the reader.
Fair point, we have added a sentence after these equations (Lines 893-895) that reminds the reader of all these terms.

References:
Kijko, A., Vermeulen, PJ., Smit, A. (2021) Estimation Techniques for Seismic Recurrence Parameters for Incomplete Catalogues SURVEYS IN GEOPHYSICS Vol.43 Issue 2 pp. 597-617, DOI:10.1007/s10712-021-09672-2
Kijko A., (2025) Bayesian Assessment of the Maximum Possible Earthquake Magnitude mmax. JOURNAL OF THE GEOLOGICAL SOCIETY OF INDIA. Volume 101 Issue 6 Page764-769 DOI: 10.17491/jgsi/2025/174157
Vermuelen, P., Kijko, A. (2017) More statistical tools for maximum possible earthquake magnitude estimation. Acta Geophysica 65(4), pp.579-587. DOI10.1007/s11600-017-0048-3

We would like the thank the reviewer again for their comments. They are greatly appreciated.