

Solid Earth Discuss., community comment CC2  
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## Comment on se-2021-23

Davide Gamboa

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Community comment on "Fault interpretation uncertainties using seismic data, and the effects on fault seal analysis: a case study from the Horda Platform, with implications for CO<sub>2</sub> storage" by Emma A. H. Michie et al., Solid Earth Discuss., <https://doi.org/10.5194/se-2021-23-CC2>, 2021

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HI

This is quite relevant for general fault analysis. I came across some similar issues/questions (but not in such depth or scenario comparison).

I admit I haven't read all in detail, but I was wondering if some of the extra detail on the shorter line spacing could be an artifact induced by picking and then surface interpolation? At the distances here presented I am guessing it is probably less of an issue... My pick at every line produced something extremely rugged (I think the spacing of that dataset was lower than the 25 in your work), but at 10 to 20 lines things were much better (the software used and interpolation algorithm may play a bit role here).

On another work and data, I had to deal with was the surface geometry and application for the stress models (Gamboa et al 2019, work in here <https://www.sciencedirect.com/science/article/pii/S1750583619302968>). What you and I ended up using are different packages, but I am guessing that in the end they use the same equations from Ferril and Morris.

Did you use the same software to map the faults and do the stress models (i.e. traptester?) If so, my guess is that if the fault mapping in the same package it may limit geometry problems. In my case I mapped the faults in Petrel and exported to Move, which caused some geometry issues which I sorted out through some touch up and resampling - the latter was particularly important to get more detail. Yet, it may risk losing some of the original geometries.

As a last note, your work draws parallels with this:  
<https://www.sciencedirect.com/science/article/pii/S004019511930099X>

I guess the general observations should be pretty much the same, and it is a bit common sense: the shorter the spacing, the higher the detail... yet, may be worth checking.

Regards,

Davide Gamboa