Dear Dr. Malinowski,

thank you very much for the quick turnaround and these helpful comments. We have addressed them below and in the revised version of the manuscript. Following your suggestion, we included many of the points from the previous reply letter in the manuscript to give the reader a bigger picture. Below you can find a point by point response (green) to your suggestions giving line numbers corresponding to the tracked changes version of the manuscript. We hope that you will find the manuscript suitable for publication now and would like to thank you again for your time and effort,

Best regards,

Thilo Wrona et al.

REVIEW

The revisions prepared do not completely address the concerns of the reviewers in all cases. I would suggest that for

1) Reviewer 1 - line 29 comment - the authors add some of this information about limitations or what is known into the manuscript, as this question will likely be of interest to many readers.

> This has been added to line 339-347 in the revised manuscript with tracked changes.

2) Reviewer 1 - Line 50 - Again, this would be something for the authors to add a few notes on in the discussion or conclusion

> This has been added to line 359-362 in the revised manuscript.

3) Reviewer 1 Line 88- As many methods use different scores, it would be ideal to add these in an appendix, or make a quick note of them. Particularly, the F1 score is quite common.

> This has been added to line 130

4) Line 93- what is confidential about the weights? is this a commercial software or algorithm? Perhaps weight ranges could be mentioned.

> The weights are the machine learning model. They were generated using the confidential 3-D seismic data set and are thus a derivative, which we are not allowed to publish.

5) Reviewer 1 - line line 221 and Figure 3 comments - again, ideal to add these thoughts to the manuscript, as well as following comment on filter sizes.

> Yes, this has been added to the manuscript (L178-180, L368-369) and the figure caption (L137-139).

6) Reviewer 1 - final comment. Please add this information to the manuscript.

> This has been aded to line 232-234

7) Reviewer 2 - It would be ideal to further address this comment by adding more of the geological insights and improvements into the manuscript discussion, to highlight the advancements that this method allows - specific examples (perhaps even adding a geologic comparison figure to highlight) would really help readers see the improvements that can be

obtained in terms of improvements in geologic insights, and perhaps encourage them more to try out this method on their datasets.

We completely understand the intention of highlighting new geological insights from this study. However, a detailed, in-depth analysis of this fault system will be required to come to concrete conclusions regarding new geological findings (e.g. on the differences between tectonic domains or the influence of pre-existing structures). These fault analyses and geological discussions go beyond the scope of this manuscript, which already covers quite a range of subjects (geophysics, machine learning, image processing, network analysis). We are convinced that the readers can recognize the potential of our approach and further papers on the geological interpretation of this complex fault system will follow.