Response to minor revision comments of manuscript titled "Multiscalar 3D-temporal structural characterisation of Smøla Island, Mid-Norwegian passive margin: an analogue for unravelling the tectonic history of offshore basement highs"

Dear Prof. Stefano Tavani,

We would like to extend our sincere appreciation for the Topic editor comments on the revised manuscript titled "Multiscalar 3D-Temporal Structural Characterisation of Smøla Island, Mid-Norwegian Passive Margin: An Analogue for Unravelling the Tectonic History of Offshore Basement Highs".

The comments have been thoroughly considered and the necessary amendments made. Please note as well, that we have updated the reference list to comply with SE's requirements. Our responses are outlined below in red after each of your comments:

Responses

1. The abstract should be shortened for conciseness.
   The abstract has been significantly shortened from 344 words (2552 characters) to 248 words (1926 characters). We have done our outmost to maintain the overall message that the abstract should convey.
2. The numbering of figures is not sequential, which has been already remarked by one of the two reviewers. Please double check this point, I have found these:

   At line 157, "Figure 4" should be erased.

   At line 160, "Figure 8" should be erased.

   At line 164, "Figure 9" should be erased.

   At line 239, "Figure 7" should be erased.

   We appreciate the highlighting of this issue. The figures cross-references which were not in sequence have been either removed or restructured. All the cross references to figures through the text are now sequential.

3. Regarding lines 181–182 and Figure 2, the definition of sets in the rose diagram appears to be arbitrary. A more rigorous approach would require defining a set between two minima in the frequency distribution. Accordingly:

   L4 & L5 in < 10 km long lineaments should be considered the same set.

   L2 & L6 in < 10 km long lineaments should be considered the same set.

   L8 is just a minimum between L1 and L2.

   L7 is likely just a minimum between L1 and L4+L5.

   Please fix the text in the discussion accordingly.

   We agree with this comment. The rose diagrams in Figure 2, and the allocation of the lineaments within the text, are now reorganised to reflect azimuth frequency maxima on the <10 km roseplot. This has involved combining certain sets (for example L4 and L5), in agreement with the comment. The number of lineament sets have therefore decreased to four sets (L1 to L4). Originally, the lineaments were allocated to eight

sets (which may have appeared as azimuth frequency minima, or as the same set on the <10 km rose plot) to account for observed relative cross-cutting relationships, and therefore possible different formation ages/stress field conditions. We have now adjusted the text to describe how these specific 'late' lineaments (reactivations) are subsets within the more general four lineament sets. For example, the NNE-SSW striking lineaments (previously allocated to L7), and the NNW-SSE striking lineaments (previously allocated to L8) are apparent late reactivations of the N-S striking L1 lineament set. We now feel that this is a better approach at outlining the lineament sets. Figure 2b 'zoom-in' blocks, rose plots, and the text of the results, and discussion sections have been amended accordingly.

4. In Figure 3B, the rose diagrams should be removed. When strike and dip are provided, the rose diagram becomes redundant.
   We agree with this comment and have removed the roseplots from Figure 3 (3B) and have updated the text accordingly.

5. Furthermore, please explicit the reviewers' names in the acknowledgements section.
   We have now explicitly stated the reviewers' names in the acknowledgements section.

We again appreciate your efforts and valuable feedback and look forward to the final decision.

Yours sincerely,

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