Answers to Review #1

Specific comments:

Q1: *Line 307: Please indicate the diffuse boundaries in Fig. 4e and 5b. You don't refer to Fig. 4f and Fig 5d.*

Response: Diffused boundaries are best observed in Fig. 5b and d and we indicated them using the arrows. We fixed all the references to figures.

Q2: *Line 392-393: I would put this in the method*

Response: Done. The sentence was moved to the methods section of the manuscript.

Q3: *Line 406: are these truncations indicated by one of the white arrows? If not, can you indicate them in the figure.*

Response: Done. We indicated it in the figure.

Q4: *Line 411: Please add a figure reference for "subgrain boundaries appear white in blue halite cores".*

Response: Done. The reference was added.

Q5: *Line 420: where are the fluid inclusions in Fig. 11f?*

Response: This was wrongly referenced in the text and corrected to "11e".

Q6: *Line 422: I don't see fibrous crystals in Fig 11e.*

Response: This was wrongly referenced in the text and corrected to "11c".

Q7: *Line 424: Please explain why you refer to Krabbendam et al., 2003 here.*

Response: This paper is a good example of a recrystallized texture where grain size is strongly affected by second phases.

Q8: *Line 557: subgrain rich grains are uncommon but in line 437 you say abundant presence of subgrains, also visible in Fig. 10d and 11d?*

Response: For clarification, we have added: "Further, we suggest that most subgrains visible through gamma decoration but not visible in the etched surfaces are paleosubgrains, which are not present anymore although this cannot be proven by the presented data."

Q9: *Line 632: Why does this constraint show that the viscosity ratios were less than R=50?*

Response: We corrected the sentence "This constraint shows that viscosity ratios could be slightly higher than R=50".

Technical corrections

Q10*: Line 49: delete one MPa*

Response: Fixed.

Q11: *Line 91: <u>The</u> shape*

Response: Fixed.

Q12: *Line 304: remove folds*

Response: Done.

Q13: *Line 307: a locally diffuse boundary or locally diffuse boundaries*

Response: We wrote “locally diffuse *boundaries*”.

Q14: *Fig. 10a) what are the green lines in the figure? c & d: what do the white arrows point to? There is no (f) at the beginning of the description of (f).*

Response: We have added in the caption of Fig. 10:

a) "Green lines indicate folded millimetre-scale inclusion rich halite layers."

c) "Arrows point to grain boundary of halite grain that is overgrowing fluid inclusion bands of neighbouring grain.

d) "Arrows indicate blue and white subgrainboundaries."

f) fixed.

Q15: *Table 1 – Change Fig. 12 to Fig 13, and Fig. 13 to Fig. 15 Perhaps good to somewhere indicate that Fig. 13d, 15b and 15f are the same.*

Response: Thanks for noticing. We fixed it.

Q16: *Line 499: Moreover, the thickness of each layer decreases causing the thickness of the whole D1 domain <u>to</u> decrease*

Response: Done.

Q17: *Line 506: represented by <u>the</u> thick layer*

Response: Done.

Q18: *Line 506: Please refer to Fig. 13a &b for the distinct small folds.*

Response: Fixed.

Q19: *Line 506: The thin layer in <u>this</u> domain*

Response: Done.

Q20: *Figure 15 caption: A_{pert}/h_{ref} 0.03 should be 0.045, 0.1 should be 0.15 and 0.3 should be 0.45.*

Response: Thanks for noticing. We fixed it and also corrected the same mistake in Fig. 14.

Q21: *Line 577: In this study, we show <u>that</u>*

Response: Done.

Q22: *Line 579: effectively as a thick*

Response: Done.

Q23: *Line 607: Refer here to Fig. 9*

Response: Done.