

Dear Editor,

We would like to thank Reviewer 1 for his comments, english corrections and constructive remarks. All suggestions have been accounted for. Since there was no critical points, we simply followed advices from R1. Some examples are listed below.

Line 34 : « significant, deep » has been added

Line 167 : We agree that a comparison between different density laws could be interesting, but it was not the scope of this study.

Lines 288-291 : we agree that these sentences are not essential and we have deleted them.

Line 384 : One sentence about the observed flow reversal has been added.

Line 464 : R1's suggestion about a transition sentence has been accounted for. We followed his proposition.

Line 467 : « heat advection » has been added.

Line 521 : References to volcanic massive sulfide deposits and to Coumou et al. (2009) have been added.

Line 533 : « fluent-rich » has been removed.

Line 557 : « spanning » replaces « including »

Lines 600-601 : Sentence and related references have been removed.

Apart from these minor revisions, the equation A3 has been corrected and an additional funding resource has been added in the Acknowledgement section.