

Response to Reviewer #1

The author carefully revised the paper, and I have no objection to the interesting work presented. I'll just list a few mostly technical suggestions below.

We sincerely thank the reviewer for the careful reading of our manuscript and for the constructive minor comments. We greatly appreciate the time and effort devoted to reviewing our work. All comments have been carefully addressed and incorporated into the revised manuscript, which we believe has improved the clarity and overall quality of the paper. In the following, the reviewer's comments are presented in *italics*, and our responses are given in regular text.

Minor comment

l. 33 '... and active driver...'

It has been corrected. Thank you.

l. 176: I would remove 'Nordic Seas' among the areas with sparse coverage. Whereas this was the case, I believe, in the first few years of the Argo sampling, this has not been the case more recently (except maybe in some areas with seasonal sea ice in western Nordic Seas or northern Barents Sea in winter/spring). Probably best to say '... with sparse coverage in the Arctic Ocean and in areas with seasonal ice cover' (that way, this also includes some Southern Ocean areas not well covered in Argo floats).

Thank you for this comment. The wording has been changed accordingly.

l. 339: add after 'Regional patterns of E-P' ...

Added.

l. 523, the ratio should be τ_{adv}/τ_0 and not the reverse; otherwise write on the right side 1/10-1/50

No. it should be τ_0/τ_{adv} .

l. 625: you probably don't mean 30-40°S when commenting formation regions responsible to subsurface salinity maximum (isn't it usually a bit closer to the equator in the South Pacific?)

Thank you for this comment. The latitude has been removed.

l. 708: instead of 'comprimising' could be 'including'

This has been revised.

l. 726: 'strengthen' instead of 'strength'

Thank you for spotting the typo. It has been corrected.

l. 888: 'toward' instead of 'oward'

It has been corrected. Thank you.