

We again thank Hjálmar Hátún and the anonymous reviewer. Here we detail our responses (in blue) to the comments by the reviewers (black). Line numbers given by us refer to the revised manuscript (not the tracked-changes version).

Reviewer #1

We thank Hjálmar Hátún for the positive reaction to our response and related revisions and are pleased to find that there are no further requests to modify the manuscript.

Reviewer #2

I thank the authors for having properly answered some of my comments/queries. On the other hand, I don't find that there was much effort to shorten/simplify the paper.

In particular, I don't fully understand the response brought to my comment that there does not seem to be much added value in separating core and non-core properties, provided that their time series are rather similar and that for the discussion on the transport (or the heat fluxes), one cannot really estimate separately the impacts on each of those. There are many other assumptions (on the extent of each domain, or, as the other reviewer points out, the influence of what happens in terms of properties and transport west of the NASC), which, I believe, make the distinction adopted rather unimportant. I had suggested presenting and discussing one single parameter (instead of the two) (maybe some weighted average of the two sets of properties), leaving to an appendix, the separate presentation of the two. This has not been done/replied to. How do you justify it?

Despite that, I am still favorable for the publication of the paper.

We thank the reviewer for their overall positive sentiment towards our manuscript.

We acknowledge that the reviewer is not convinced about the split we do between the core and non-core areas.

We have addressed the reasoning behind the split in our previous response and in the manuscript (lines 128-130): We split the sections in the core and non-core areas to make it possible to compare the NwASC core properties between sections because the sections are of different lengths.

Concerning the presentation of both core and non-core properties in the beginning of the results (sections 3.1 and 3.2 with related figures 4 and 5): Because defining a core area is somewhat arbitrary, we feel that it is important to illustrate that we indeed capture the warm and salty AW core reliably (as seen in figures 4 and 5), and that the result is robust and not sensitive to the exact choice of cutoff between core and non-core (the time series are highly correlated, figure 5a-h). We mention the latter in lines 151-153 in the manuscript.

In the remainder of the manuscript, including all further analyses and discussions, we only use the core properties, which is in agreement with the reviewer's request to only use a single property.

We now emphasize this by adding the word "core" in the heading of 3.3. and adding the following statement to the end of section 3.2 (line 225-226): "All analyses and discussions in the remainder of this manuscript are based on the core properties only."