

Dear editor;

We thank the valuable comments given in the review. The authors agree with all of them, and we have modified the manuscript including all recommendations.

Additionally, some changes related with the first table (product table) have been included to properly reference the data used.

Following we include a brief point-by-point reply to the comments:

L54 – ‘proposed covering’ – something missing
Accepted: “are proposed to cover...”

L58 – remove ‘constitute’
Accepted

L68 – remove comma after dynamics
Accepted

L70 – in ‘the’ IBI region
Accepted

L135: ‘differentiation’ implies a mathematical derivative function. I think you actually wanted to say ‘difference’?
Accepted

L136 – the different products were interpolated to which grid?
The selected grid to homogenise de spatial information is explained few lines later. (141-145).

L132-145: not necessary to say lat/lon maps, just maps is enough; The same for lat/lon ensemble, ‘spatial ensemble’ is enough.
Accepted

L139: “Then the vertical integrations and spatial average ‘were’ (not was) obtained”
Accepted

L140-141 says the same thing as L136-137.
The first sentence (L136-137) was removed.

L149 – should it be ‘Section 5’ here? (Section 6 should be the data availability section, which is missing from the revised manuscript).
Accepted.

L150: Which NAO index was used? The one provided by NOAA[1] and by NCAR [2], for example, are slightly different. And can you add a plot of the NAO index to the manuscript or to supplementary? I am not sure if I would say that it was moderately positive from 1993-2010, but actually mainly negative, with a minimum in 2010, and then a mainly positive behavior. The description in L211-212 seems more accurate.

This paragraph has been modified avoiding the use of “significant trends” and describing the two periods as representative of NAO change of phase.

The NOAA web page has been properly referenced in the manuscript.

A figure of NAO index in annual means has been included as supplementary material.

L156: you use ‘time series’ here, with space, and in other instances ‘timeseries’. Please be consistent (I would suggest time series, with space).
Accepted

L167: And are the trends from 0-2000m significantly? A trend of 0.4 with an uncertainty of 0.39 doesn’t seem very robust.. I would still dare to say that the intermediate layers (150-

700m) dominate the OHC variability, since the difference from 0-700 and 0-2000m is almost negligible.

We agree that this result is in the limit of significance, thus we have considered it as a mathematical result with no real significance.

Some changes have been included in the paragraph and in the first paragraph of conclusions.

L190: typo 'shake'

Accepted

L192: Suggest to add a reference depth to the mixing layer, since this can vary a lot depending on the region.

To avoid confusion, we have changed the term by upper layer.

L223: at the end of the sentence, I think it should be '35' and not '24', referring to the region centered at 35°N.

Accepted

L241: 'boundary transports of MOW and NAO'. I guess you meant to say something else than 'NAO' here? The boundary of MOW should either be with other water masses or with another region.

This sentence has been corrected: "significant anti-correlation between the westward and northward transport of MOW"

L246: 'occupies' should then refer to a depth; a water mass occupy a certain depth, or has a certain thickness.

This sentence has been corrected: "Considering that each water mass has different thickness".

L255: remove comma after both.

Accepted

L259: Suggest to replace 'despite' for 'although'.

Accepted

L251: Section 6 is missing.

Corrected