

Dear reviewer,
Thank you for your suggestions. Below are our replies.

Table 1: I'm not overly familiar with sea surface salinity restoring, a footnote on units would be useful.

Reply: a footnote is added

Line 159-160: averaging over the Eurasian basin, does this includes the Greenland – Iceland - Norwegian seas?

Reply: We added “In this study, the Arctic Ocean is defined as the Arctic area enclosed by Fram Strait, Barents Sea Opening, Bering Strait and the northern boundary of Canadian Arctic Archipelago, and the Eurasian Basin and Amerasian Basin are defined as the deep Arctic Ocean areas with bottom topography deeper than 500 m and separated by the Lomonosov Ridge.” L151-153

Figure 12 and 13: blue colors representing shallow depths is not intuitive to me. Consider flipping the colorbar or using a different colorbar for these figures.

Reply: colormap is changed from a divergent one to a sequential one.

Line 427-428: consider rephrasing to avoid overuse of negatives (reduction in dissimilarity is not pronounced).

Reply: changed to “With the increase in model resolution, the consistency of the simulated freshwater column among the models is not clearly improved.” L429-430.

Best regards
Qiang