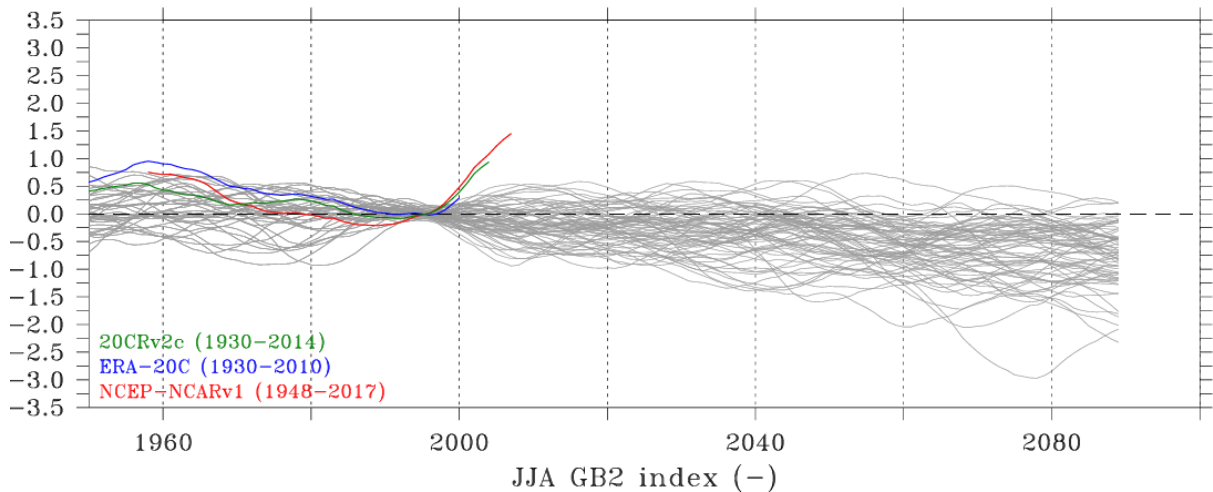
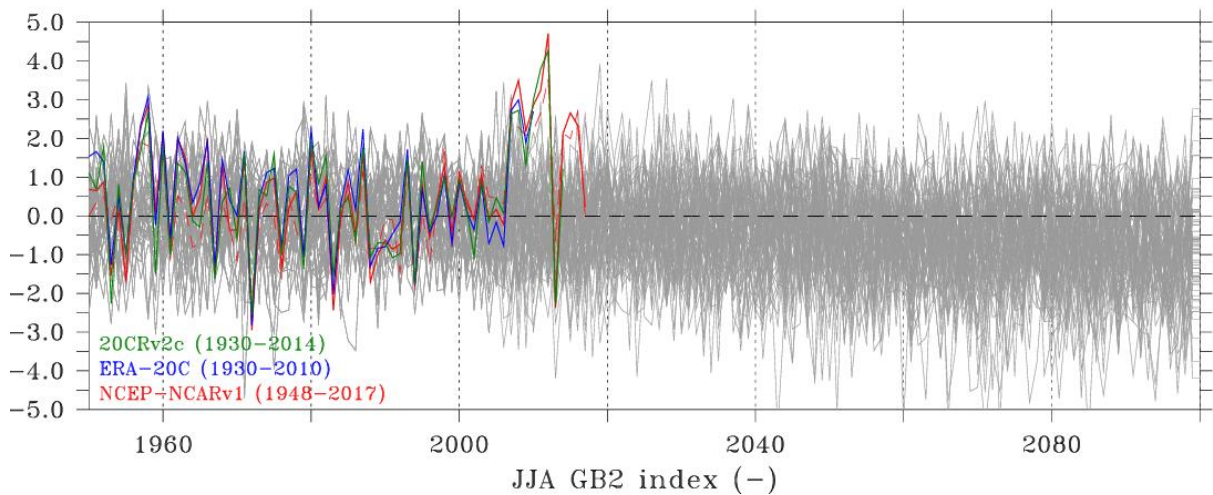


We thank Referee 1 for their helpful comments. In the revised manuscript we will reformulate the introductory section to focus on the three questions, raised by the reviewer in his/her first paragraph, that need to be addressed. We are actually addressing all three of these questions. The main message is indeed that CMIP5 models do not realistically represent recent (last ~20-25 years) changes in Greenland blocking, and that this brings into question their reliability for future prediction of North Atlantic regional atmospheric circulation/dynamics changes.

Regarding the reviewer's concerns about data smoothing, we have re-calculated all the graphs based on mid-point running means and, as shown below, it hardly makes any difference to the results:



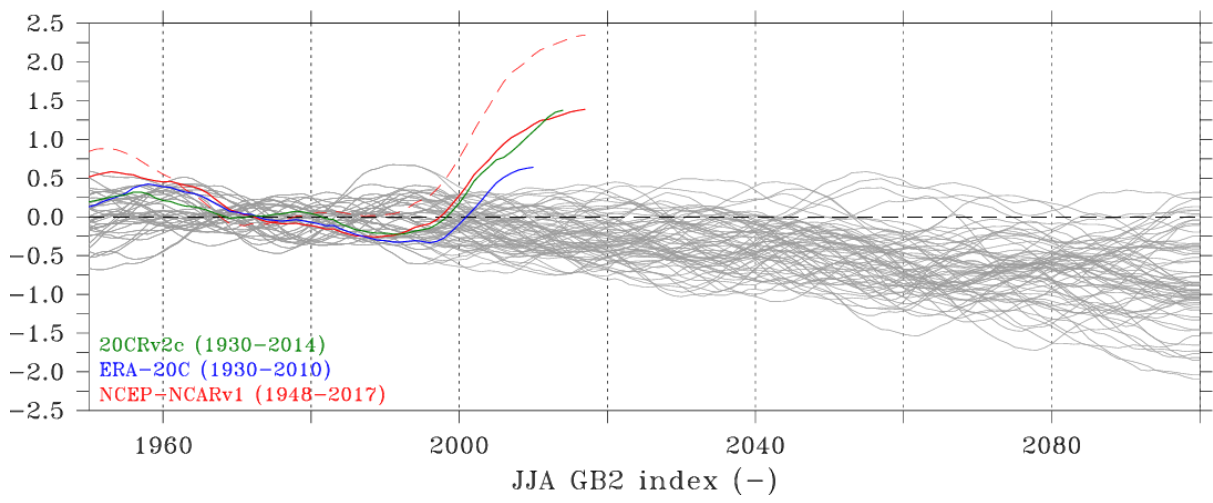
All data points are simply displaced a few years to the left but the relative changes and differences between modelled (CMIP5) and observed (reanalysis) GBI changes are the same. We will update this in the revised version. The CMIP5/reanalysis GBI trend difference is still clear even when using the annual (non-smoothed) JJA time series, as shown below:



We have also checked - and will show in the revised paper - that our results are insensitive to the choice of reference period. The following graphs are the same as Figure 1 but use 1960-1990 and 1960-2005 as the reference period. We also intend to present a comparison of trend and standard deviation statistics for all unsmoothed (CMIP5 and reanalysis) GBI time series in the revised version.

Edward Hanna and co-authors, 27 June 2018

Same as Figure 1 in paper but using 1960-1990 as the reference period:



Same as Figure 1 in paper but using 1960-2005 as the reference period:

