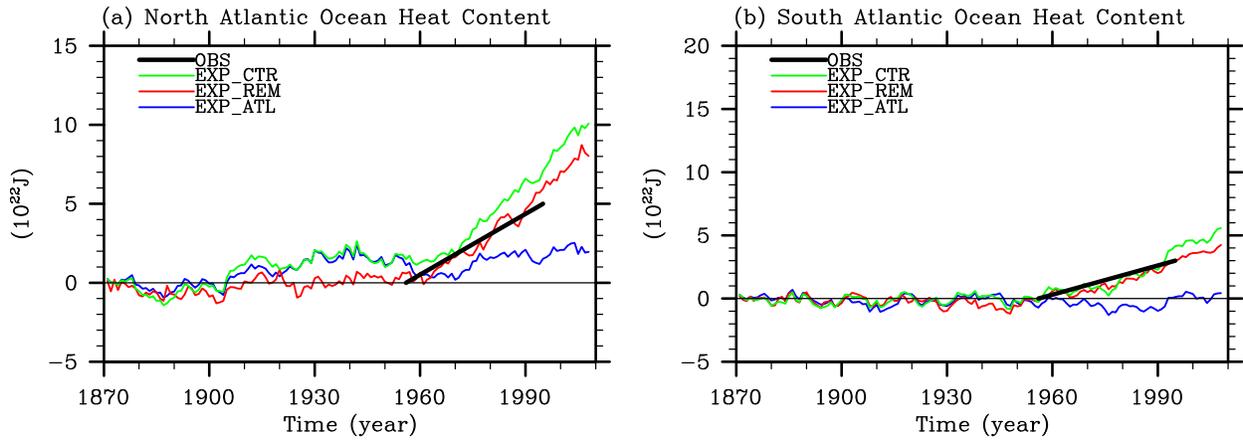


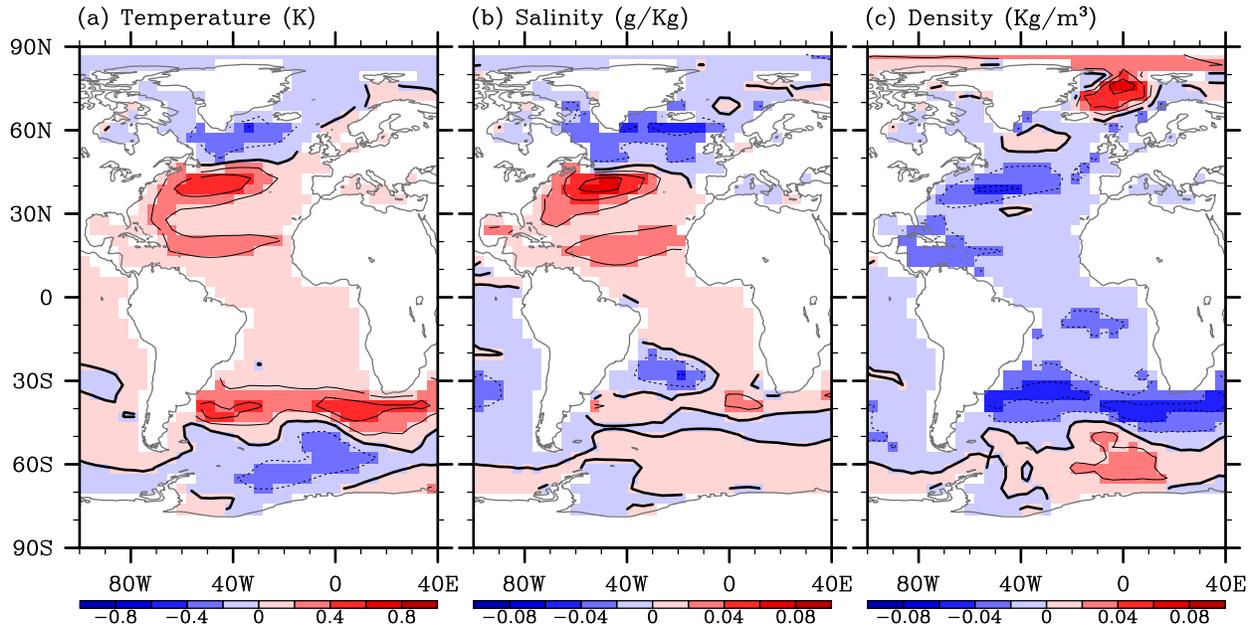
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2 **Figure S1.** (a) Simulated barotropic stream function averaged for 1979-2008 periods, obtained
3 from EXP_CTR. (b) Difference in the simulated barotropic stream function between 1979-2008
4 and 1871-1900 periods, obtained from EXP_CTR. The unit is Sv ($10^6 \text{m}^3 \text{s}^{-1}$). (c) Globally
5 averaged zonal wind stress for 1871-1900 and for 1979-2008 periods, obtained from the 20CR.

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 2 **Figure S2.** Simulated (a) North and (b) South Atlantic Ocean heat content changes in the upper
 3 3000m in reference to 1871-1900 obtained from the three model experiments. The thick black
 4 lines in (a) and (b) are the observed trends of the North and South Atlantic Ocean heat content
 5 increase, respectively, reproduced from Levitus (2000).

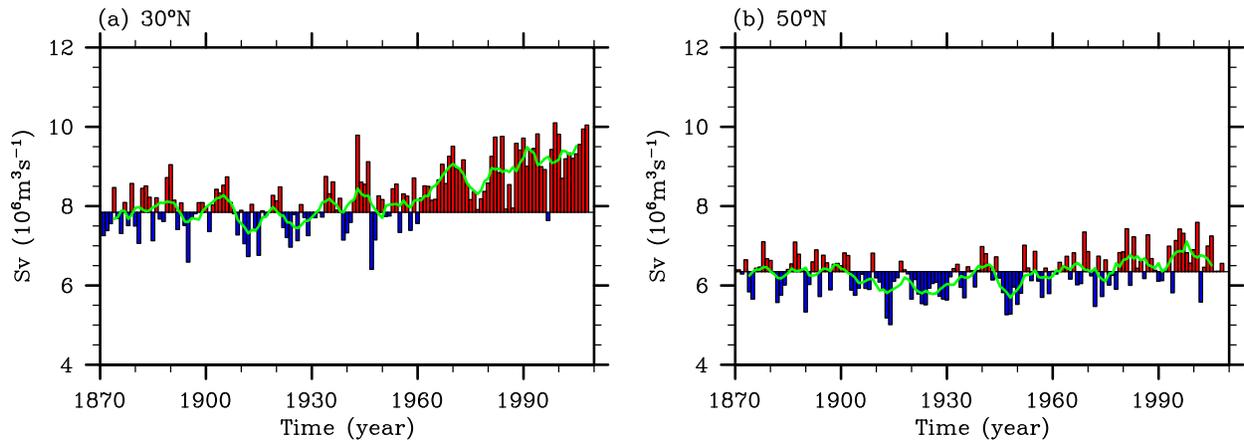
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2 **Figure S3.** (a) Simulated differences in temperature, salinity and potential density in the upper
3 3000 m between 1979-2008 and 1871-1900 periods, obtained from EXP_CTR.

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CCSM3_POP (EXP_CTR): AMOC Index (Max. Stream Function)



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2 **Figure S4.** Time series of the simulated AMOC index (maximum overturning stream function)

3 at (a) 30°N and (b) 50°N obtained from EXP_CTR.

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