Supplementary Information of Koseki et al.

Here, we would like to have supplementary figures for Koseki et al. This information consists of 5 figures.

**Figure S1.** Schematic of experimental designs of NorESMs
**Figure S2**
Same as Fig. 1, but for summer (June-July-August) climatology

**Figure S3**
Depth-longitude section of annual-mean climatology for (left) temperature, (middle) nitrate, and (right) phosphate averaged 25°S and 18°S in observations and each NorESM simulation.
Figure S4
Annual-mean climatology for primary production in observations and each NorESM simulation.

Figure S5
Composite anomalies of primary production for observation and NorESM simulation for (top) Atlantic Niño and (bottom) Atlantic Niña in June-July, respectively.