

1 Supplemental material submitted for the paper

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4 **Anthropogenic carbon dynamics in the changing ocean**

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9 This supplemental material contains three supplemental figures.

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11 References

12 Cavalieri, D., Parkinson, C., Gloersen, P., and Zwally H. J.: Sea ice concentra-
13 tions from Nimbus-7 SMMR and DMSP SSM/I passive microwave data, Boul-
14 der, Colorado USA: National Snow and Ice Data Center, Digital media, 2008.

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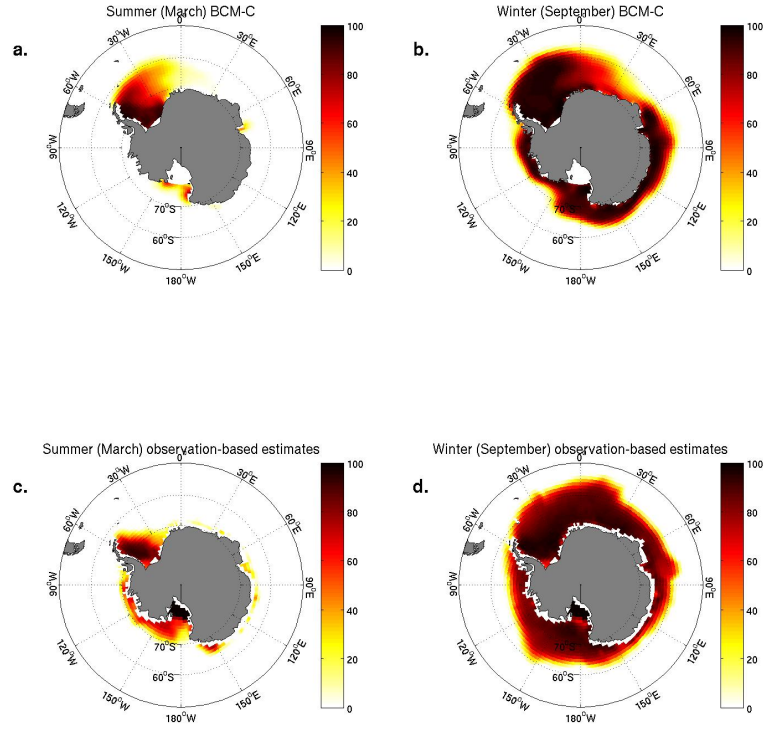


Figure 1: Model simulated (top) and observed (bottom) seasonal mean ice concentration for March (left) and September (right). Units are in [%]. The model simulations are averaged for the 1950-2000 period. The monthly climatology (1979-2007) data shown here are derived from the NASA team sea ice concentrations from nimbus-7 SMMR and DMSP SSM/I passive microwave data (Cavalieri et al., 2008).

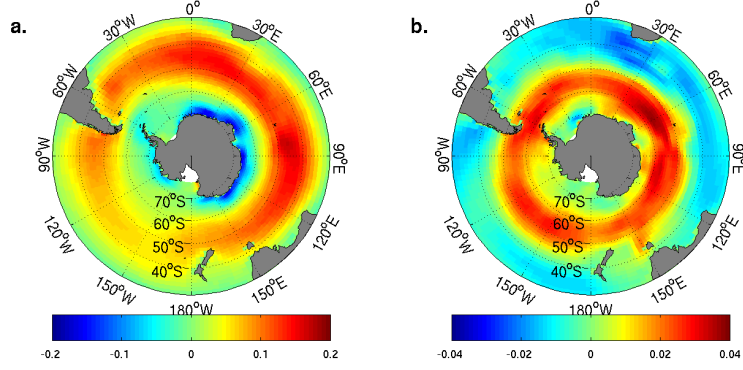


Figure 2: Simulated zonal wind stress over the Southern Ocean for the (a) early pre-industrial period (1850-1869) and the simulated mean changes toward the end of the 21st century (i.e., (2080-2099)-(1850-1869)) computed from EXP3. Units are in $[\text{N m}^{-2}]$.

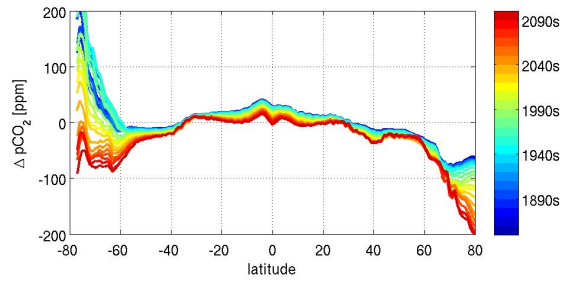


Figure 3: Latitudinal variation of the simulated ΔpCO_2 ($\text{pCO}_2(\text{water}) - \text{pCO}_2(\text{atmosphere})$) between 1850 and 2100 period. Each lines represents decadal-averaged ΔpCO_2 . Units are in $[\text{ppm}]$.