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Inconsistent strategies to spin up models in CMIP5: implications for ocean biogeochemical model performance assessment

Roland Séférian et al.

Correspondence to: Roland Séférian (rseferian.cnrm@gmail.com)

- Supplementary Figures -

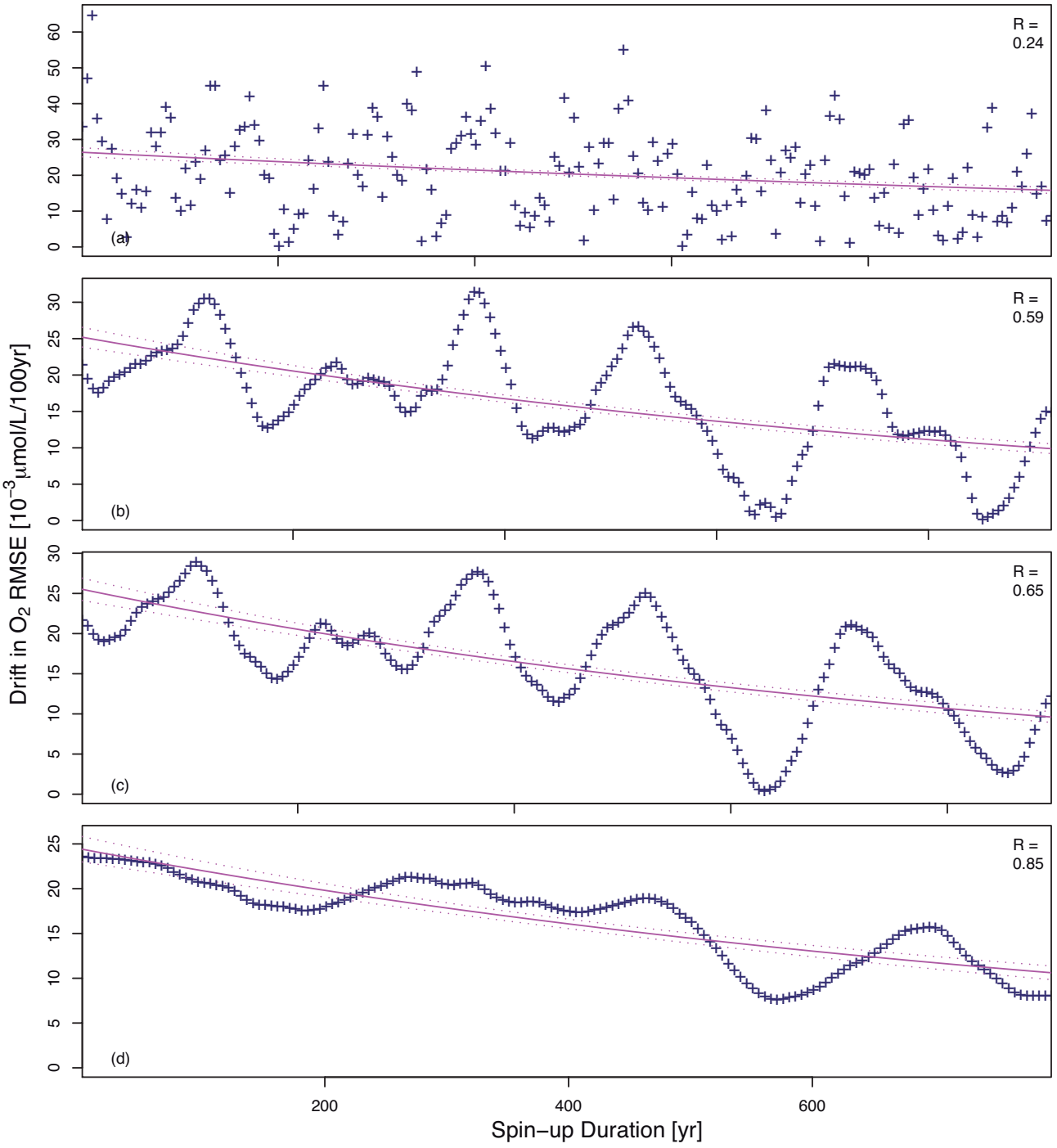

Figure S 1: Temporal evolution of the drift in O_2 root-mean squared error (RMSE) at 2000 m over the 1000-year-long CMIP5 piControl simulation of IPSL-CM5A-LR. Drift in O_2 RMSE is computed from time segments of (a) 20, (b) 50, (c) 80, and (d) 100 years distributed evenly every 5 years from the beginning until the end of the piControl simulation. The best-fit linear regressions between drifts in O_2 RMSE and simulation duration are indicated in solid magenta lines; their 90% confidence intervals are given by thin dashed envelope.

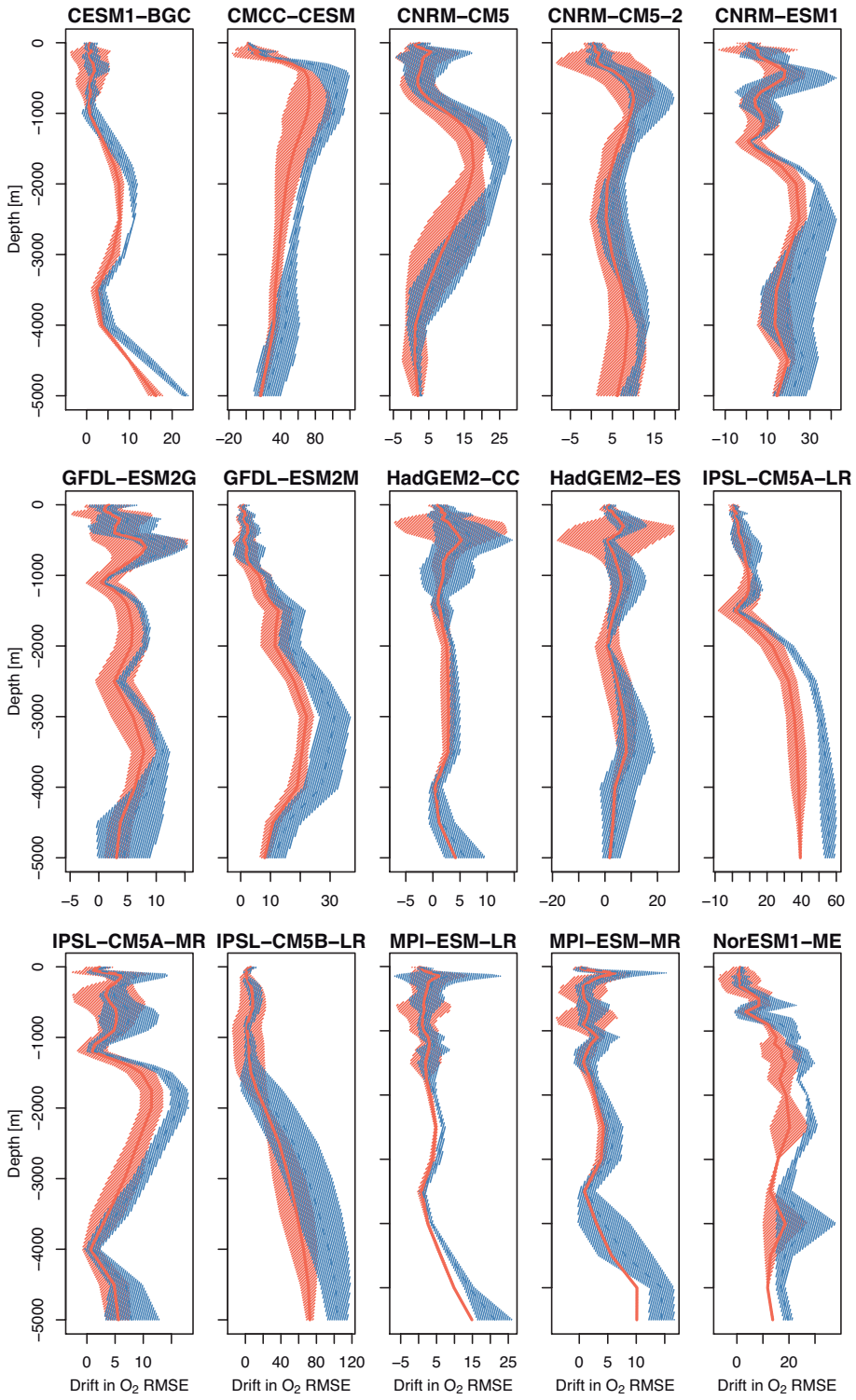

Figure S 2: Vertical profiles of the globally averaged drift in O_2 root-mean squared error (in 10^{-3} μmol L^{-1} kyr^{-1}) from the 15 CMIP5 Earth system models used in this study. Two ways to determine the globally averaged drift are presented in this Figure: vertical profiles determined from globally averaged O_2 RMSE are indicated in blue while those computed from the globally averaged 3-dimensionnal drift (i.e., estimated from 3-dimensionnal O_2 RMSE over domains where the drift in O_2 RMSE fits the simple drift model) are given in red. Solid lines represent the mean vertical profile of the drift in O_2 RMSE; the 90% confidence interval around the mean profile is represented with hatching patterns.

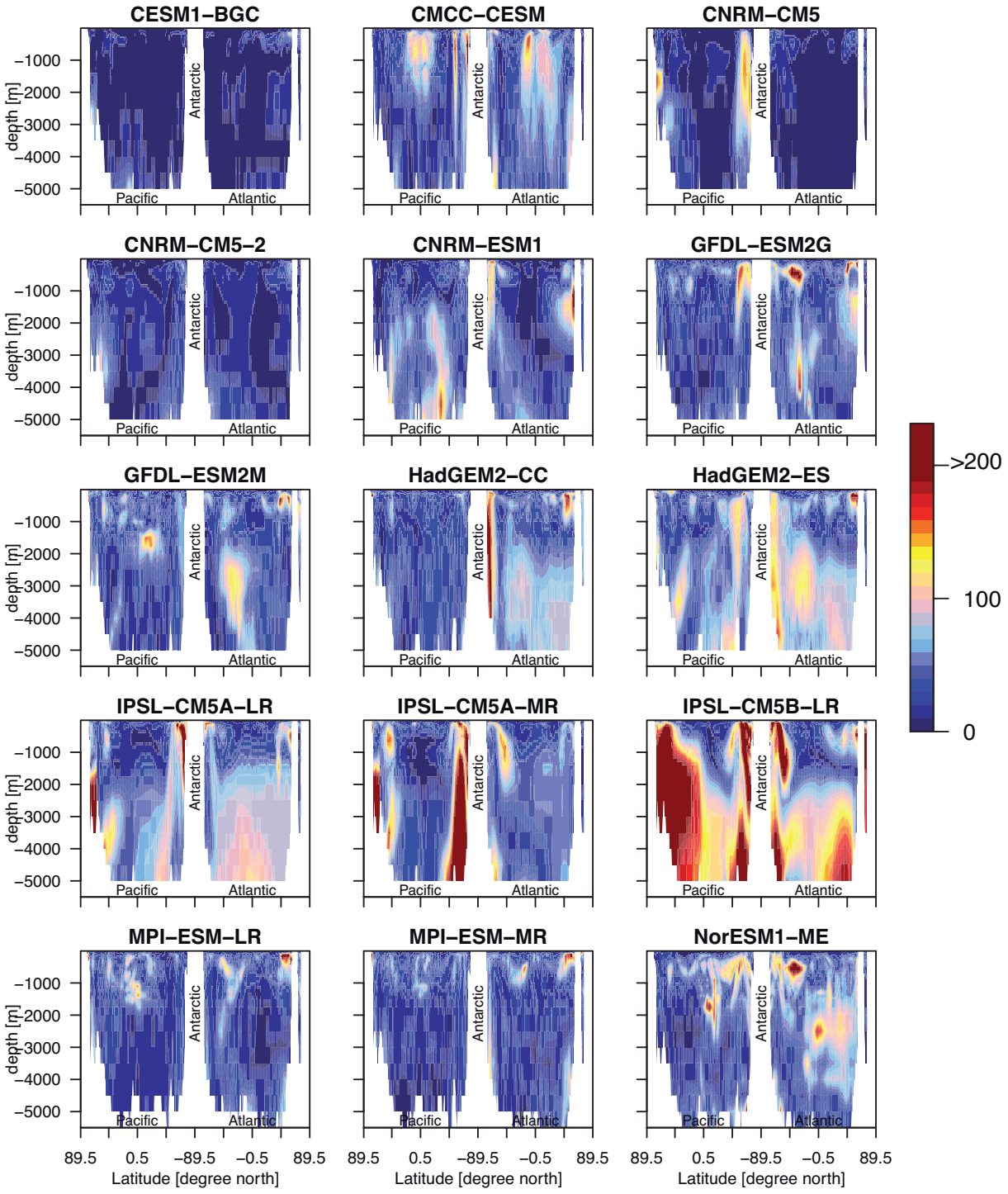

Figure S 3: Vertical structures of the basin-scale drift in O_2 root-mean squared error (in 10^{-3} μmol L^{-1} kyr^{-1}) from the 15 CMIP5 Earth system models used in this study. Basin-scale drift in O_2 RMSE has been computed from 3-dimensionnal drift averaged over Atlantic and Pacific oceans (i.e., estimated from 3-dimensionnal O_2 RMSE over domains where the drift in O_2 RMSE fits the simple drift model).