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A series of quasi-global eddy-resolving ocean simulations using the OGCM

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A series of quasi-global eddy-resolving ocean simulations using the OFES (OGCM for the Earth Simulator, Masumoto et al., 2004) with horizontal resolution of 0.1 degree (˜10km), which includes a 98-year-long integration driven by monthly climatological fields of NCEP reanalysis (Masumoto et al. 2004), a multi-decadal (1950-2010) hindcast simulation with the reanalysis forcing (Sasaki et al. 2008) and a supplemental hindcast simulation with QuikSCAT wind stress forcing (Sasaki et al., 2006), have been conducted on the Earth Simulator. The simulations display oceanic mean field and variability with rich fine-scale structures such as mesoscale eddies and oceanic fronts, which are comparable to available observations, and intriguing results are emerging from the realistically simulated oceanic fields. The high-resolution ocean simulations can offer to advance our understanding of the ocean circulations and their variability.

Keywords: Ocean General Circulation Model, Eddy resolving, Quasi-global simulation