



A quasi-global eddy-resolving ocean general circulation model and its preliminary results

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In this study, a quasi-global (excluding the Arctic Ocean) eddy-resolving ocean general circulation model (OGCM) is established based on the latest version of the LASG/IAP Climate system Ocean Model (LICOM2.0). The horizontal resolution and vertical resolution are increased to 1/10 degree and 55 layers, respectively. Forced by the surface fluxes from the reanalysis and observed data, the model has been integrated for approximately 20 model years (20a). During the last 8 a, the model is driven by daily mean wind stresses from QuikSCAT and heat fluxes from reanalysis data from 2000 to 2007. The basic performance of the OGCM is analyzed using the last 8 a simulation output. Compared with the simulation of the coarse-resolution OGCM, the eddy-resolving OGCM not only better simulates the spatial-temporal features of mesoscale eddies and the paths and positions of western boundary currents but also reproduces the large meander of the Kuroshio Current and its interannual variability. Another aspect, namely, the complex structures of equatorial Pacific currents and currents in the coastal ocean of China, are better captured due to the increased horizontal and vertical resolution.