

Numerical simulation of western boundary current and its Impact on the marginal seas in the Northwestern Pacific by a 1/10 degree eddy-resolving OGCMYongqiang Yu[†]; Hailong Liu[†] LASG, Institute of Atmospheric Physics, China, People's Republic ofLeading author: yyq@lasg.iap.ac.cn

A 1/10 degree quasi-global except for the Arctic Ocean eddy-resolving OGCM was developed at the Institute of Atmospheric Physics (IAP), and the model has been integrated with daily atmospheric forcing from 1960 to 2006. We evaluate the overall ability of the OGCM to reproduce subtropical gyre in the Northwestern Pacific with special emphasis on the Kuroshio and its impact on the marginal sea in this study. The OGCM does not only simulate reasonable path, meso-scale meander and separation of the Kuroshio, but also strong zonal jets in the subtropics associated with topography forcing and subtropical mode water. Further analyses shows close relationship between North Equatorial Counter Current (NECC) bifurcation, Kuroshio variability and ENSO. Due to high resolution, the model also simulates realistic offshore circulation in the marginal sea such as South China Sea, East China Sea, and Yellow Sea etc., and Kuroshio exert important effects on these marginal seas. For example, both the meso-scale eddy shedding from Kuroshio near Luzon strait, and the Yellow Sea Warm Current (YSWC) as a branch of Kuroshio can be well simulated by the OGCM.