Geophysical Research Abstracts,
Vol. 11, EGU2009-5821, 2009
EGU General Assembly 2009

Ocean General Circulation Sigma-model on Conformal Curvilinear Orthogonal Grid

A.V. Gusev and N. A. Diansky
INM, RAS, Moscow, GSP-1, Russian Federation (dinar@inm.ras.ru)

The INM RAS ocean general circulation sigma-model is realized for the Global Ocean. The present model has the spatial resolution 1 degree on longitude, 0.5 degree on latitude and 40 sigma-levels along the depth. For adequate simulation of the Arctic region the model area is situated on the conformal curvilinear grid. The Moebius transformation is applied to the standard spherical grid so that the new poles are placed on land and the new equator is coincident with the geographical one. We carried out the experiments by integrating the model for 100 years using the realistic 6hr and 24hr CORE atmospheric data provided by GFDL for the normal climatic year. The experimental results are analyzed. The comparison was made with the results obtained by the model built on the standard geographical grid with the North Pole in the Arctic Ocean. It was shown that the new model reproduces the Arctic Ocean circulation pattern more adequately. For instance, we managed to simulate the Transpolar Drift that could not be obtained by using the standard grid. The ocean climatic characteristics are also well reproduced. The MHT, OSF and equatorial circulation have good resemblance with the well-known observational data. The model is supposed to be the oceanic component of the new version of Earth climate model that is being developed in the INM RAS.