Geophysical Research Abstracts, Vol. 7, 09819, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09819

Mesoscale variability in an eddy-resolving global POP simulation

J. McClean (1), M. Maltrud (2) and D. Byrne (3)

(1) Naval Postgraduate School, Monterey, USA, (2) Los Alamos National Laboratory, Los Alamos, USA, (3) University of Maine, Orono, USA (mcclean@nps.edu / Fax: 1 831-656-2712 / Phone: 1 831-656-2437)

Results will be presented from a twenty-five year (1979-2003) realistic eddy resolving global simulation using the Parallel Ocean Program (POP); it is configured on a displaced North Pole grid to allow the inclusion of the Arctic, it has a horizontal spacing of 0.1-degree at the equator and 40 vertical levels, and has an active mixed layer. The simulation was spun up from rest using surface forcing consisting of daily NCEP/NCAR reanalysis fields and monthly observational data products. The simulated ocean state for the post spin-up period (1994-2003) will be examined in terms of both its mean and variability, however particular focus will be placed on the representation of the eddy variability and significant mesoscale processes. Measures of energy levels and intrinsic scales will be presented and compared with those from satellite altimetry and surface drifting buoys. Meridional heat transports, their components and divergences will be discussed; eddy heat fluxes will be compared with estimates from available observations. Also the role of the mesoscale in inter-basin property exchanges will be discussed, particularly heat and salt fluxes associated with Indonesian Throughflow and Agulhas Current Retroflection eddies. Finally, volume transports of the major current systems will be compared with observational estimates.