Geophysical Research Abstracts,
Vol. 11, EGU2009-9881, 2009
EGU General Assembly 2009

Global Ocean Volume Transport Estimation in the 50-year GECCO Assimilation

W. Wang, A. Koehl, and D. Stammer

Universitaet Hamburg, Institut fuer Meereskunde, Center for Marine and Atmospheric Sciences, Hamburg, Germany (weiqiang.wang@zmaw.de)

The global ocean volume transports are estimated from the German ECCO (GECCO) assimilation results for the period 1952-2001. The estimation showed that two nearly independent overturning cells are obtained, one connecting overturning circulation in the Atlantic Ocean, the other connecting the Indian and Pacific Ocean through the Indonesian archipelago. The estimated mass transports of some major passage in different ocean basins agree well with a number of observations such as in Drake Passage, 25°N of the Atlantic Ocean and Indonesian throughflow. The results are also consistent with the previous estimation based on inverse box model output, though there are some differences on the bottom transport and on the strength of overturning cells. Moreover, much more time-varying features of mass transport are revealed in different ocean basins during the study period, including slightly intensified of the Atlantic meridional overturning circulation with 2 Sv overall increase, intensified Indonesian throughflow which implied the intensified connections between the Indian and Pacific Ocean, and weakened Antarctic Circumpolar Current (ACC) which's closely related to long-term variability of deep layer transport divergences in the Southern Ocean.