Geophysical Research Abstracts,
Vol. 11, EGU2009-5468-1, 2009
EGU General Assembly 2009

Study of the eddy fluxes in the Southern Ocean

M. Trani, P. FALCO, and E. Zambianchi
Università Parthenope, DISAM, Napoli, Italy (pierpaolo.falco@uniparthenope.it, +39 081 5476515)

It is widely demonstrated that eddy fluxes in the Southern Ocean play a central role to its dynamical and thermodynamical balance, transporting heat and momentum meridionally across the Antarctic Circumpolar Current (ACC), which actually acts as a barrier to the poleward transport. The study of these fluxes is remarkably difficult there for the limitations due to the lack of a dataset broad and fine enough to resolve the wide range of scales of turbulence.

Estimates of the eddy heat and momentum fluxes are carried out in this work using data from WOCE-SVP drifters following the ACC all around the globe.

Initially the heat and momentum eddy components of the flux have been calculated using classical statistics. This approach reveals patterns in good agreement with those present in literature, although there are some quantitative differences probably due to the methods used, which do not make a distinction among the various components of the turbulent fluxes, such as eddies of different scales or, from a more strictly dynamical point of view, between the rotational and divergent parts of these fluxes. A subsequent analysis is performed, aimed at isolating these components in order to show their individual relevance in the interactions with the mean flow and in the meridional transport of heat and momentum