Geophysical Research Abstracts
Vol. 14, EGU2012-7606-1, 2012
EGU General Assembly 2012

Front Structure in the Area South of Africa on Satellite Altimetry Data and Hydrophysical Section in December 2009

A. Gritsenko and R. Tarakanov
Institute of Oceanology RAS, Sea Currents Lab., Russian Federation (50alex50@mail.ru)

The structure of fronts and jets in the sector of the Southern Ocean south of Africa is investigated based on the data of hydrophysical section SR02 occupied from R/V "Akademik Ioffe" in December 1–22, 2009, and the data of 18-year series of weekly maps of satellite altimetry AVISO (DT-Global-MADT-Ref product, http://aviso.oceanobs.com). The spatial position of the fronts in the Antarctic Circumpolar Current (ACC) were compared and elaborated on various spatial and temporal scales. The spatial position of the fronts clarified as on-board observations and from satellite data. Eight fronts corresponding to the present understanding of the structure of the Antarctic Circumpolar Current fronts According to satellite and ship data were obtained. Temporal variability in the ACC jets in the Atlantic sector of the Southern Ocean was examined based on the 18-year series (to 01.01.1993 up to 31.12.2010) weekly satellite altimeter data. This analysis allowed to refine the spatial and temporal variability of the Antarctic Circumpolar Current fronts and to clarify criteria for identifying fronts in the ACC and in the subtropical zone of the ocean. It was confirmed the multi-jet structure of the ACC consisting of three jets of Subantarctic Current, three jets of the Polar Current, and two jets of the Southern Antarctic Current. Analysis of satellite altimetry maps has shown that the axis of jets in the Antarctic Circumpolar Current at time intervals of the order of the year correspond to the same range of values on the maps of absolute dynamic topography (ADT). However, over long time intervals are very substantial variation in the spatial position of local maxima of the gradient ADT along the axis of ADT. Among the results should also be noted that on the hydrophysical section SR02 was not found subtropical front. This fact apparently is a feature of the investigated sector of the Southern Ocean.