



Energy exchange between the jets of the Antarctic Circumpolar Current and synoptic eddies in the Drake Passage and Scotia Sea

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Energy exchange between the jets of the Antarctic Circumpolar Current (ACC) and ocean synoptic eddies in the surface layer of the Drake Passage and Scotia Sea is studied on the base of the satellite altimeter data for the period from 1993 to 2014 with the assumption that every ACC jet is enclosed between some fixed isopleths of the ocean surface absolute dynamics topography (ADT). All the ACC jets are dynamically unstable what results in the jet meandering, formation of cyclonic and anticyclonic eddies inside the meanders, intensification of the eddies up to reaching their maximum energy, subsequent eddy attenuation and their reverse merging with the mother jets. Corresponding fluctuations of the kinetic energy of the ACC jets and the eddies, generated by different jets, in the surface ocean layer were computed and analysed for the above mentioned 22 years period. As a main result of the analysis, it was confirmed that the kinetic energy of the ACC jets depends strongly on the intensity of jet meandering and processes of eddy formation and reverse eddy absorption by the jets. Mean and extreme energy parameters of the jets and eddies were also estimated. The northern and middle jets of the South Polar Current are in the lead with respect to the formation of the ocean synoptic eddies.