



Variability of intrinsic origin of the Antarctic Circumpolar Current: a model study

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The high- and low-frequency variability of intrinsic oceanic origin of the Antarctic Circumpolar Current is studied, south of Australia and New Zealand, with a sigma-coordinate eddy-resolving ocean general circulation model forced by steady momentum fluxes. The acceleration of the mean flow induced by the mesoscale eddy field is assessed through an energetic analysis based also on the evaluation of integrated wavelet amplitudes. The role of the topography in affecting the jet structure and transport through its dominant contribution to the potential vorticity gradients, and relative excitation of topographic Rossby waves, is analysed in detail. Mechanisms of mutual interaction between the high- and low-frequency variability are identified. This work was carried out in the framework of the MOMA project of the Italian “Programma Nazionale di Ricerche in Antartide”.