

Lagrangian observations of surface coastal flows North of 30° S in the Humboldt Current system

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We analyze the surface circulation of the coastal waters of the Humboldt Current system based on five Lagrangian satellite-tracked drifters (three launched on January 2005 and two on January 2006) deployed at 30° S, lasting 30 and 60 days, respectively. Based on the concurrent analysis of buoy's records, sea surface temperature (SST) satellite images and local wind forcing, we propose that the coastal surface circulation between 30° S and 23° S can be described as a 0.2 m s⁻¹ equatorward flow. Coastal export seems to depend upon the generation of cold-water, locally forced, squirts advecting upwelling waters up to 295 km offshore. Within the nearshore zone (< 30 km from the coast), near-inertial motion and alongshore changes in current direction may serve as mechanisms for enhancing water residence time. © 2006 Elsevier Ltd. All rights reserved.