



## Abstract View

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# Downwelling over the Southern California Shelf

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### ABSTRACT

Coastal downwelling events, induced by tropical storms which travel up along the coast, occur regularly during the summer over the shelf of Southern California. Large vertical velocities ( $0.5 \text{ cm s}^{-1}$ ) are observed over the very narrow (3.6 km) shelf. Simultaneous observations of longshore current and cross-shelf pressure gradient indicate the cross-shelf momentum balance is geostrophic. Heat balance computations reveal that the increase in mean temperature over the shelf is mostly caused by cross-shelf advection of heat. Large longshore accelerations occurring simultaneously at all depths in the shallower part of the shelf may be explained by longshore sea surface slopes contributing, along with the wind stress, to the longshore momentum balance. Profiles of temperature and velocity are consistent with a two-layer description of the vertical structure, these layers being separated by a thin, turbulent mixing layer.

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