



Near-coastal ocean variability off southern Tamaulipas - northern Veracruz, western Gulf of Mexico, during spring-summer 2013

David Rivas

CICESE - Oceanografía Biológica, Ensenada, Mexico (drivas@cicese.mx)

Six months of observations from a near-coastal mooring deployed off southern Tamaulipas-northern Veracruz coast (western Gulf of Mexico) during spring-summer 2013 provides velocity, temperature, salinity, sea level, and dissolved oxygen series in a region which ocean dynamics is still poorly understood. As shown in a preceding analysis of this region's winter circulation for winter 2012-2013, coastal trapped motions associated with the regional invasion of synoptic cold fronts modulate the local variability; this pattern remains in the spring 2013, when even more intense events of alongshore flow (>50 cm/s) are observed. This intensified flow is associated with a significant decrease in the dissolved oxygen, most probably related to an influence of hypoxic waters coming from the northern Gulf. In late spring-mid summer, the wind pattern corresponds to persistent southeasterly winds that favor the occurrence of a local upwelling, which maintains a local thermal reduction (>3 degrees Celsius) and is associated with a persistent northward flow (>30 cm/s). The late summer was characterized by a significant tropical-cyclone activity, when a depression, a storm, and a hurricane affected the western Gulf. These tropical systems caused an intense precipitation and hence an important intensification of the local riverine discharge, and the winds enhanced the mixing of such riverine waters, via mostly kinetic stirring and Ekman pumping.