



## **The Coastal Boundary Layer of the Yucatan Current**

C. Coronado and J. Candela

CICESE, Ensenada, Mexico (coronado@cicese.mx)

High-resolution measurements of the Yucatan Current, one of the most intense western-boundary currents in the World at these latitudes, were performed by CICESE as part of its CANEK project to understand the mechanisms that transfer properties across the shelf slope. Eight shallow water and moored acoustic Doppler current profilers (ADCPs) were deployed along a transect southeast of the shallow fringing reef lagoon of Puerto Morelos, through the narrow continental shelf and down the slope of the Yucatan Channel. The dataset spans 22 months, starting in May 2006, and includes full water column current profiles. Currents were found more variable over the shelf break than on the shelf or the slope. The mean current strongly follows the bathymetry everywhere and particularly on the slope. Currents were highly depth-independent in the upper 100 m, accounting for more than 80% of the eddy kinetic energy (EKE) in this layer. The analysis suggest that the transition between deep and shallow water current regimes is driven by the coupling of the lateral boundary layer imposed by the shelf-break, and the shallow surface and bottom boundary layers originated by wind stress, tidal currents, and wind wave bottom stress.