



## **The flow off the NW Gulf of Mexico slope before oncoming Loop Current eddies**

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Fourteen months of direct surface to bottom current measurements off the slope of the NW Gulf of Mexico capture the evolution of currents as an oncoming warm Loop Current eddy disintegrates off the coast and interacts with the near-shore flow. In general, current fluctuations, typically 20-25 cm/sec, are much larger than their mean, which are closer to 5-10 cm/sec. Currents at the edge of the shelf are strongly influenced by topography, often in the shape of a coastal flow, but with active exchange with deeper waters. In the upper layers, energy increases offshore, with a clear influence from eddies to a depth of about 1000 m. Further at depth, a southward flow appears to be locked to the slope in the form of a countercurrent, whereas in deeper water motions are somewhat more energetic and support earlier investigations that showed the prevalence of bottom-trapped topographic waves. The spectrum of motions in the upper layers is very energetic in the 60 to 100 day bands and is therefore barely resolved, which casts some uncertainty on the direction of the mean flow, but some short-lived, high-frequency events are well documented by our observations