



## **Thermohaline structure and currents in the Gulf of California, México: Summer 2004**

R. Castro(1), M Lavín(2), E Beier(2) and A. Amador-Buenrostro(2)

(1) Facultad de Ciencias Marinas, UABC, Ensenada, Baja California, México  
(rubenc@uabc.mx / Fax +526461744103 +526461744570. (2) Departamento de Oceanografía Física CICESE, Ensenada, Baja California, México.

As part of the 2004 North American Monsoon Experiment, the meteorological and oceanographic causes of the Gulf of California SST evolution during the Monsoon were investigated through two 17-day oceanographic cruises in the southern of the Gulf of California. The cruises took place in June and August, 2004. In both cruises high-resolution vertical profiles from CTD/LADCP were obtained. Daily satellite SST images were collected from May to June. From these data, we describe the spatial variability of the thermohaline structure and circulation. The observations from June shows in great detail an invasion of surface waters (Tropical Surface Water and California Current Water) toward the interior of the Gulf. These water masses covered much of the upper layers in the cross-section right at the Gulf entrance, but further inside the Gulf they were confined to the Sinaloa shelf. The geostrophic and the LADCP currents reveal an intense coastal current (0.4-0.8 m/s), ~30 km wide, between 0-150 m depth flowing toward the interior of the Gulf, attached to the Sinaloa platform. This flow seems to be related to the poleward Mexican Coastal Current. In the inner cross-sections, the Gulf of California water was located adjacent to the Peninsula, flowing slowly toward the Pacific, with little recirculation or mixing with the incoming waters. This current pattern is probably responsible for the transport of Pacific waters toward the North Gulf, and for the observed advance of the isotherms close to the mainland coast during the monsoon onset. The thermohaline structure and the circulation pattern during August were very different from that in June: they were dominated by cyclonic and anticyclonic mesoscale eddies, indicating that much recirculation was taking place. At this time the SST was practically homogeneous in the southern Gulf.