



Upwelling and dissolved oxygen variability over the continental shelf off Central Chile

Oscar Pizarro

Department of Geophysics and COPAS, University of Concepcion, Concepcion, Chile (orpa@prof.c.udec.cl)

In contrast to the legendary upwelling that is present along the Peruvian and northern Chilean coasts, the coastal ocean off central Chile presents a highly seasonal upwelling regime that extends from early spring to mid fall. This region is also affected by a strong subsurface poleward flow, which transports southward low-oxygen water from the eastern equatorial Pacific. Coastal waters are highly productive due to upwelling, but the upwelled source waters are very low in oxygen and may produce hypoxia near the bottom over the continental shelf. The spatial structure and main scales of variability of the upwelling cells and dissolved oxygen are poorly understood off central Chile. One of the main limitations has been the lack of direct information. During the last years an observational program has been conducted over the relatively wide continental shelf off Concepción (36°30' S). This program has included ship-based (monthly) time-series, underwater glider observations and time-series based on moored sensors. Here, based on physical (temperature, salinity, pressure, velocity), biological (chlorophyll fluorescence) and chemical (dissolved oxygen) information, we analyze the main scales of time variability of the upwelling, the coastal currents and their impact on the dissolved oxygen. The cross-shelf structure of the upwelling region was sampled using underwater gliders capable of sampling the entire water column to a maximum of 1000 m and from near shore to 200 km offshore.