

# Seasonal mixed layer depth changes in the southern part of the California Current

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Seasonal variability in the isothermal (ILD) and isopycnal (MLD) surface layer of the southern part of the California Current is examined. The data presented were gathered during twenty cruises over a grid based on the IMECOCAL station plan, which is the same that the CalCOFI station plan from lines 100-130, out to station 80. The Kara's et al. (2000) method is used for determining the ILD and the MLD. The optimal criterion is found to vary seasonally. The spatial distributions of both ILD and MLD were irregular. The ILD and MLD reached the maximum depth in January and the minimum in July. At the first order, that variations are explained with wind stress and surface net heat flux. The MLD was deeper than the ILD. The highest MLD-ILD difference was in January (20 m) and the lowest in July (5 m). Those differences are explained in terms of advection throughout the thermocline of salty waters from the south to the north and from the east to the west. In the survey performed in January of 1998 the MLD was anomalously high 90 m, as a result of the effects of El Niño 1997-1998 in the study area.