



Salinity minima, water masses and surface circulation in the Eastern Tropical Pacific off Mexico and surrounding areas

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The seasonal variations of the water masses and their interactions are analyzed in the Tropical Pacific off Mexico (TPOM) and four contiguous areas of on the basis of new extensive hydrographic database. The regional water masses intervals are redefined in terms of Absolute Salinity (SA) in g kg^{-1} and Conservative Temperature (Θ) according to TEOS – 10. The California Current System Water (CCSW) mass is introduced as an improved description of the former California Current Water (CCW) together with the Subarctic Water (SAW) to describe better the characteristics of the components of the California Current System.

Hydrographic data, Precipitation–Evaporation balance and geostrophic currents were used to investigate the origin and seasonality of two salinity minima in the area. The shallow salinity minimum of around 33.5 g kg^{-1} originated in the California Current System and became saltier but less dense water as it traveled to the southeast. It can be identified as a mixture of CCSW and tropical waters. The surface salinity minimum of $32 - 33 \text{ g kg}^{-1}$ was seen as a sharp surface feature in the TPOM from August to November. It was produced by the arrival of tropical waters from the south in combination with the net precipitation in the area during these months. This result provides new evidence of the presence of the poleward-flowing Mexican Coastal Current and, for the first time, of its seasonal pattern of variation.