



Dynamics of the Central American Pacific

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The Central American Pacific (CAP) is the area located in front of the Central America coast, within the Eastern Tropical Pacific region (ETP). The CAP dynamic is strongly influenced by the NE and SE trade winds, also this area is characterized by the presence of coastal wind jets at Gulf of Papagayo and Gulf of Panama, which are product of wind pulses blowing through the mountain gaps of the central cordillera, generating important eddies as the cyclonic eddy of Costa Rica Dome (CRD). Nevertheless, the implications of the topography of the continental margin of Central America in the determination of the dynamic processes in the area related to the action of winds and currents are still unknown. Between November and December 2010 (dry season), onboard the R/V Miguel Oliver, oceanographic parameters were measured in the CAP area, which despite its importance, has been poorly investigated until date. Available oceanographic information was processed in order to describe the dynamic along the Pacific coast of Central America, which is notable for its particularly strong stratification in the water column and the distribution of properties, as response to the presence of areas with high temperatures (above 28° C) and other areas with salinity minimum (less than 24). In this study was possible to distinguish three hydrographic zones: PM, south, in the adjacent region to Gulf of Panama, PY, in the center, in the adjacent region to Gulf of Papagayo, and FC, to the north, in the adjacent region to Gulf of Fonseca. The surface transformations of the water bodies, from south to north, observed in these zones could be indicting the presence of Costa Rica current. The prevailing wind system is the main force of variations in the surface distribution of the temperature in the area, and they are responsible of important structures as the anticyclonic eddy in front Gulf of Fonseca, eddies derived from the wind pulses of Gulf of Papagayo, and the relatively low temperatures in Gulf of Panama. The marked stratification of the water column is guided by variations in temperature and salinity along the CAP area. These parameters are homogeneous below 50m depth in all zones but in the surface layer the vertical gradient of salinity increase to the south, as happens with the density. The vertical distribution of potencial-density in the first 200m in transects perpendicular to the coast of each of the three zones in which is evident the increase of the stratification southward and how is becoming shallower near PM zone. In the CAP area a very strong and one of the world's regions with shallower thermocline was evident; the thermocline is enhanced by a strong halocline, generating a strong pycnocline. The isotherm of 20°C was found describing the center of the thermocline in the area and it helps to describe its vertical variations. The pycnocline could be located between the first 10 - 50 m, it is very shallow, compared with other regions of the planet.