



## **Impact of intraseasonal Kelvin waves on the primary production in the Humboldt Upwelling System**

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The Humboldt Current System is the most productive upwelling system in terms of small pelagic fish catch in the world ocean. Due to its proximity to the tropics, it is highly sensitive to the intense intraseasonal to interannual fluctuations originating from the Equatorial Pacific, which propagate poleward along the Peruvian coasts in the form of coastal Kelvin waves. These waves act to displace upward or downward the thermocline and the nutricline, generating a modification of the nutrient input into the euphotic zone and modifying the nearshore mesoscale activity. The impact of this process on the primary productivity of the upwelling system, the structure of the ecosystem, the offshore and downward export of organic matter is evaluated for the different characteristics of the waves during the period 2000-2006 using SeaWiFS sea color data, DUACS altimetric observations and numerical simulations from a regional coupled dynamical/biological model. The impact of the coastal waves on the biological activity is contrasted with regards to the seasonality of the upwelling system.