

Intraseasonal to interannual variability at Paita (5°S) during 1990-2006

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A combination of *in situ* data, satellite data and regional model simulations are used to investigate the vertical structure variability off Paita [Peru, 5°S]. The focus is on the connexion with the equatorial variability at intraseasonal, near-annual and inter-annual timescales considering that the high-frequency forcing from equatorial origin, although with a weaker amplitude than ENSO events, can also drastically impact marine resources.

The observing system at Paita consists in a coastal automatic ocean-meteorostation and microscale and mesoscale cross-shelf sections at 20 nm and as far as 200 nm off-shore that continuously measures temperature and salinity on the shelf and in the upper 500 m layer on the continental slope. The comparison between the two sites reveals a contrasted vertical structure variability which corresponds to different dynamical regimes. Whereas the vertical structure variability on the slope is directly influenced by the equatorial variability through coastal-trapped wave activity, the variability on the shelf is dominated by mesoscale recirculation. Combined to altimetric sea level data and an estimate of the equatorial Kelvin wave amplitude from SODA Reanalysis, the *in situ* data and regional atmospheric and oceanic model simulations (ROMS and WRF) are used to document the Peru Undercurrent (PUC) variability in the intraseasonal and interannual frequency band off Paita.