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Thermal Impact of oceanic coastal Kelvin waves along West African coasts

Malick Wade (1) and Alban Lazar (2)
(1) LPAOSF, Univ. Cheikh Anta Diop, Dakar, Senegal, (2) LOCEAN, UPMC, Paris, France

We investigate the role of the intra-seasonal oceanic Kevin waves and their impacts on Sea Surface Temperature (SST) along the three West African coastal upwelling regions.
1/4° NEMO OGCM runs were carried out and analyzed to study the detailed of coastal wave impacts on SST. Idealized experiments support the altimetry results, and particularly the observed amplitude and velocity changes. SST impacts of up to 0.5°C/cm are visible in model runs, as well as in observations by regression of SSH on SST along coastlines. The experiments allow for a partition of lateral and vertical advection and mixing processes, and uncover their competing or constructive effects on the thermal stratification and the SST field, depending on location and mean circulation.