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Long-term Variability of NorthWest African coastal upwelling

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The NorthWest African sea surface temperature variability can be due to changes in the coastal upwelling system, which in turn can be due to alterations in local winds, global winds induced by teleconnections and propagation of waves from wind burst in remote regions. The two last processes could be due in turn to changes in the sea surface temperature in extended regions remote from the upwelling region, as changes in Pacific SSTs associated with ENSO, or in the Equatorial Atlantic SSTs. This work demonstrates that the whole signal cannot be explained by local wind/Ekman pumping and large scale winds induced by teleconnections play an important role. Using observational data of SSTs and winds from atmospheric reanalysis, and applying different statistical technics, as correlation analysis, filtering and discriminant analysis, the different influences and its stationarity along the observational period are tested pointing to the non stationarity of El Niño influence in FMA and to other possible predictors influencing in the region.