



## **Climatological mean tropical Atlantic surface wind convergence : analysis of the drivers in reanalyses**

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Using atmosphere mixed layer models, satellites data and the Climate Forecast System Reanalyses datasets over the 2000-2009 decade, we provide an analysis of the monthly-mean climatological surface wind convergence budget over the tropical Atlantic, as well as its month to month variations. Relative influence of Sea Surface Temperature relative to free troposphere is particularly examined. Regarding the monthly-mean budget, the marine Inter-Tropical Convergence Zone (ITCZ) appears to be split into two parts. There is an “oceanic part” (defined as the region between 10-50°W), with north and south sides largely controlled by surface pressure driven convergence, to the opposite to the center dominated by free troposphere forces. East and west stands a “coastal part” (African and Northeastern Brazilian coasts), where horizontal advection and pressure contributions control surface wind convergence, with the pressure being the first order driver. This pressure contribution is largely dominated by horizontal gradients within the surface boundary layer, likely closely related to SST. On the other hand, month-to-month changes are controlled by geostrophic balance dominated by the free troposphere, with likely less influence of SST changes.