



## **Surface layer salinity under the influence of the Atlantic ITCZ**

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We study the seasonal fresh water budget in the mixed layer of the tropical Atlantic Ocean, making use of the recent decade of unprecedented observation coverage. Hydrographic, current, and microstructure data are taken from frequent ship cruises, ocean glider missions, as well as floats, drifters, buoys, and satellites. Monthly precipitation data of HOAPS4.0 serve as a basis to define regions, where rain is frequent and intense enough to classify persistent wet conditions on monthly scale. This classification allows a conditional sampling of observations into wet/dry conditions, and thus allows us to follow the seasonally moving wet regime and study its freshwater mixed layer budget. It is shown that the net atmospheric freshwater flux is compensated half by lowering the mixed layer salinity, and half by transport (vertically and horizontally) across the budget region boundaries. Due to the freshwater input, wet condition regions show an enhanced probability for near-surface stratification with mixing suppression, and an amplified diurnal warm layer cycle.