



## **Oceanic mixed layer heat budget in the Eastern Equatorial Atlantic from ARGO floats**

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During the main observational phase of the AMMA/EGEE program (boreal spring and summer 2006) dedicated to the West African Monsoon, lots of new data were collected to document the interaction between the oceanic mixed layer and the marine atmospheric boundary layer. How sea surface temperatures in the Gulf of Guinea and surrounding area are influenced by the oceanic and atmospheric dynamics and/or thermodynamics ? and how the Atlantic cold tongue affects the West African Monsoon remain open questions.

The period (2005-2007) covers the full AMMA/EGEE experiment, during which the number of observations has considerably increased throughout the Eastern Equatorial Atlantic. In this study, an original oceanic mixed layer budget combining both oceanic in situ observations from operational platforms (ARGO floats, PIRATA moorings), and atmospheric operational NWP models (for surface heat fluxes), in the equatorial Atlantic is proposed in order to assess the contribution of the main processes at play in the upper ocean.

A method has been developed to reconstruct the seasonal cycle and the interannual variability of the oceanic mixed layer heat content. The basin of interest ( $15^{\circ}\text{W}$ ,  $15^{\circ}\text{E}$ - $10^{\circ}\text{S}$ ,  $6^{\circ}\text{N}$ ) has been divided into nine boxes, selected to reflect the regional features in the dynamics and thermodynamics. Our results indicate that the thermal balance is very contrasted from box to box. In some boxes, the budget is closed, while not in others. For instance, in the cold tongue box, we suspect that the vertical heat diffusion, which cannot be estimated directly from observations, has a leading contribution in boreal summer. An evaluation of the sensitivity of the different terms to the budget is also proposed.