Equatorial Atlantic warm events that do not rely on ENSO-like air-sea coupling – Supplementary Material

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Description of heat budget analysis

Horizontal and vertical temperature advection terms in the ocean hindcast were calculated based on monthly means since only those were archived for the whole integration period. 3-day snapshots were available for the period 2000-2009. Using these for the budget calculation leads to very similar results, which indicates that transients are not very important in the region considered.

The surface heat flux term is the sum of latent, sensible, and net long and shortwave radiation fluxes. The sign is positive for downward fluxes. We chose the upper 50m for analysis since they include the mixed layer (typically 20-30m deep in the study region) and capture the subsurface horizontal advection that is crucial to the non-canonical events. When the calculation is performed on the mixed layer only, the relative importance of horizontal over vertical advection in non-canonical events remains.