Session: C2 Poster: T131A

Atmospheric dynamics leading towards the development of the Intra-American sea early rainfall season

Teddy Allen[†];
[†] The University of Miami - RSMAS, USA
Leading author: tallen@rsmas.miami.edu

The rainfall pattern of the Intra-American Sea consists of a late spring early rainfall season (ERS), a mid-summer dry spell (MSD), and a late summer secondary rainfall season. The arrival of the ERS provides the initial conditions for a successful early growing season that can reinforce the farming economy leading towards the later primary growing season. The development of the ERS results from a combination of dynamical features that produces a sub-tropical front that brings rain to the region. The sub-tropical front is supported by low level moisture transport that coincides with mid-level warm horizontal temperature advection that acts together to fuel adiabatic uplift along the front leading to precipitation. In addition, an apparent "deformation" resulting from mid-level horizontal wind shear further supports the formation of the sub-tropical front defined by the ERS. Deformation reduces and ultimately diminishes the frontal formation as the mid-level westerly winds weaken and become easterly while the easterly winds at lower latitudes strengthen. The disappearance of the ERS signals the onset of the MSD with an absence of frontal related activity.