



An oceanic mechanism for the generation of interannual climate variability in the tropical Atlantic

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The sea surface temperature (SST) in the eastern tropical Atlantic exhibits pronounced variability on interannual time scales being associated with wind and rainfall anomalies within the tropical Atlantic region. It has been proposed that the interannual variability of SST is partly driven by the variability of the deep equatorial zonal circulation, the so-called equatorial deep jets (EDJs). The EDJs may be described as a superposition of quasi-resonant equatorial basin modes and the direction of vertical phase propagation implies that their energy is propagating towards the surface. Furthermore, recent findings revealed that the EDJs in turn are maintained by intra-seasonal waves that are generated by the barotropic and baroclinic instability of the near-surface circulation. This talk will present the relevant mechanisms that are involved in the conversion of energy from one type of variability to another, i.e. from chaotic intra-seasonal surface variability via deep interannual zonal variability to interannual surface climate variability, with a special focus on the maintenance of the EDJs by intra-seasonal waves. Since EDJs, a key component of the mechanism discussed above, are not well represented in state-of-the-art Ocean General Circulation Models, preliminary findings on the sensitivity of the EDJs to model parameters and configuration are presented.