Session: B1 Oral presentation

Coupled ocean-land-atmosphere modeling of South American-Tropical Atlantic climate

Paulo Nobre [†]; Marta Malagutti; Emanuel Giarolla; Domingos Urbano; Roberto de Almeida; Guilherme Castelão; Marcus Bottino; Helio Camargo
[†] INPE, Brazil
Leading author: paulo.nobre@cptec.inpe.br

Latest version of INPE coupled ocean-land-atmosphere model is used to study the interconnection between Amazonian rainfall, atmospheric circulation and tropical Atlantic thermal structures. It is shown that the vertical distribution of latent heat released over the Amazon rainforest is utterly linked with the Walker -type atmospheric circulation cell over the equatorial Atlantic and its coupling with oceanic circulation and thermal distribution. The chronic problem of zonal SST gradient reversal relative to observations over the equatorial Atlantic, present in most global coupled ocean-atmosphere models is greatly reduced in a coupled model version in which the latent heating over the Amazon occurs over the lower troposphere; like it is the case using a modified Grell convection scheme for deep cumulus convection in the component atmospheric GCM.