The impact of South Atlantic sea surface temperature on summer precipitation in Central-Eastern Brazil

Rodrigo Bombardi[†]; Leila Maria Carvalho [†] University of California, Santa Barbara, USA Leading author: <u>bombardi@geog.ucsb.edu</u>

The sea surface temperature of the South Atlantic Ocean is responsible for significant changes in the characteristics of the rainy season (i.e. onset, duration, accumulated precipitation) over centraleastern Brazil. Above (below) normal temperatures over the tropical South Atlantic region combined with below (above) normal temperatures over the extratropical South Atlantic are associated with late (early) onset, shorter (longer) duration, and below (above) normal precipitation. The purpose of this study is to present some of the mechanisms associated with the impact of the South Atlantic Ocean sea surface temperature (SST) anomalies on the climate of central-eastern Brazil. This study has two components: observational analysis using satellite derived precipitation and sea surface temperature and regional climate simulations performed with BRAMS (Brazilian contributions to the Regional Atmospheric Modeling System - RAMS). Warm (cold) tropical sea surface temperatures over the tropical South Atlantic weaken (strengthen) the temperature gradient between land and ocean and, consequently, reducing (increasing) the moisture transport towards the continent. This research is expected to improve our understanding of the role of the South Atlantic Ocean in the variability of the South American Monsoon and contribute in improving predictive capability for its future evolution.