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Tropical Atlantic Variability: Nordeste Impact and scenarios

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The Atlantic Ocean is flanked by two large tropical continents, which host major centers of atmospheric convection. It was not until 1970s, the influence of the tropical Atlantic Ocean on continental climate variability began to come to light. The studies that followed showed that interannual variability in rainfall over the semi-arid regions of South America is associated with well organized, repeating patterns of sea surface temperature (SST) and trade wind anomalies over the tropical Atlantic.
Furthermore, these patterns of ocean and atmospheric anomalies are so arranged that their interaction gives rise to positive feedback acting to amplify each other. This mechanism called tropical Atlantic variability (TAV).
The northeast and southeast trade wind systems meet at the narrow, roughly zonally oriented intertropical convergence zone (ITCZ). The time-mean latitude of the ITCZ and the collocated rain band, often called the thermal equator or climatic axis of symmetry over the Atlantic, despite the fact that solar radiation at the top of the atmosphere is nearly symmetric about the equator on annual mean for the latest review of research on this climatic asymmetry over the Atlantic.
For example, northeastern Brazil is in its wet season at the spring equinox (March) but is kept dry at the fall equinox (September) as strong northward SST gradients prevent the oceanic ITCZ from moving south of the equator.
The objective of this study is to verify: a) What is the role of the SST seasonal cycle in rainfall over Northeast Brazil in the climate change scenarios?, b) What is the importance of variability in the current climate of northeastern Brazil and in the future climate?, and c) What causes the variability of the equatorial Atlantic?.
The regional climate model used in this study is WRF atmospheric coupled an Regional Ocean Modeling System. Scenarios is, control (1979-2000) and future (2011-2040; 2041-2070 and 2071-2100); high emission and lower emission.