



Changes in inter-annual variability of precipitation and temperature over Mexico and Central America from RegCM projections

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Future climate projections performed with the Regional Climate Model (RegCM4) are used to analyze the future changes on inter-annual variability of precipitation and temperature over Mexico and Central America. Two different global circulation models from the Couple Model Intercomparison Project phase 5 (CMPI5) are used as boundary conditions for two different RegCM4 configurations, which result in four different climate projections. Through a comparison of the precipitation annual cycles in reference period with future simulations, a shift in the annual cycle is found over Northwestern Mexico and Central America. During the rainy season (June to September), it is found an increase in the inter-annual variability of precipitation and temperature, together with a warming greater than 4°C in the mean seasonal temperature and a drying of more than 20%. An increased warming on the Eastern Pacific Ocean compared to the Tropical North Atlantic Ocean potentially generates a strengthened North Atlantic Subtropical High Pressure and also a stronger Caribbean Low Level Jet. This future ENSO-like state appears to be the mechanism driving the drying over the region