



Regional-scale processes associated with future summer drying over Central America

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Recent global-scale analyses of the CMIP3 model projections for the 21st century indicate a strong, coherent decreased precipitation response during the boreal summer over Central America and the Intra-Americas Seas. In order to examine the regional forcings and responses associated with this drying, high resolution (30 km) climate change simulations are performed for this area using the regional climate model RegCM3. We present results from two simulations: a control simulation (1971-1990) and future scenario simulation (IPCC A1B, 2071-2090) driven with initial and lateral boundary conditions from the European-Centre GCM, ECHAM. For much of Central America, the annual cycle of precipitation is characterized by a rainy season that extends from May to October with a period of reduced precipitation in July and August called the mid-summer drought (MSD). Because an analysis of the CMIP3 models suggests that the drying over Central America is associated with an early onset and intensification of the MSD, the representation of the MSD in the regional model simulations is examined in detail. In addition, potential future changes in other regional climatic features affecting summer precipitation over Central America including the Caribbean low-level jet and the eastern Pacific intertropical convergence zone are investigated.