

Progress in American monsoon research: Future climate for the Caribbean from a super-high resolution atmospheric global climate modelTrevor Hall[†]; Andrea Sealy; Tannecia Stephenson; Michael Taylor[†]The University of the West Indies, JamaicaLeading author: tannecia.stephenson02@uwimona.edu.jm

Future projections of mean and extreme rainfall and temperature under the IPCC SRES A1B scenario are examined using data from the MRI super-high resolution Atmospheric General Circulation Model. Analyses are performed over the 20km model grid for (i) the main Caribbean basin, (ii) sub-regional zones and (iii) specific Caribbean Community (CARICOM) countries. The model exhibits good skill in capturing the temporal and spatial distribution of rainfall and temperature on seasonal and annual timescales for the present climate (1979-2003). Projections indicate declines in rainfall amounts by 10-20% for most of the Caribbean basin during early (June-August) and late (September-November) rainy seasons by 2075-2099. The early dry season (December -February) is projected to get wetter by approximately 10% with a mid summer drying of 20-30% indicated. The model projects a warming of 2-3oC over the Caribbean region under the A1B scenario with a strong signal in a region just south of Jamaica. Results from the analysis of future extremes indicate a 5-10% decrease in the simple daily precipitation intensity with no significant change in the number of consecutive dry days for Cuba, Jamaica, southern Bahamas and Haiti. Finally there is indication that the number of hot days and nights will increase over the main Caribbean basin.