



## **A method to foresee the 22nd century-state of the Low-Level Caribbean Jet and the SST difference between the Eastern Pacific and Western Atlantic Tropical Oceans from 21st century RegCM4 simulations**

Edgar Pavia (1), Federico Graef (1), Ramón Fuentes-Franco (2), and Ismael Villanueva (1)

(1) CICESE, Ensenada, Mexico (epavia@cicese.mx), (2) ICTP, Trieste, Italy (rfuentes@ictp.it)

A regional climate model (RegCM4) has recently verified the strengthening of the Low-Level Caribbean Jet (LLCJ) as a response to the increasing sea surface temperature (SST) difference ( $\theta$ ) between the Eastern Tropical Pacific (ETP) and the Western Tropical Atlantic (WTA) towards the end of the 21<sup>st</sup> century. This LLCJ strengthening, in turn, has been identified as the main cause for a future significant decrease in summer precipitation over the South of Mexico and Central America (SMCA) region, as the strong LLCJ transports humidity to the Pacific Ocean away from the continent. Since this dramatic scenario is a robust signal in different studies, here we propose a method to examine the relationship between  $\theta$  and the zonal wind (U) associated to the LLCJ. The scheme consists of a pair of coupled equations which yield periodic solutions (found by means of a numerical-analytical hybrid method) which suggest that the system has a tendency to return to its present state during the 22<sup>nd</sup> century. Finally our results are compared to the available 22<sup>nd</sup> century outputs from different numerical models.