



## **Comparing climate indices between a northern (arid) and a southern (humid) basin in Mexico during the last decades.**

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It is a matter of current study to determine potential climate changes in different parts of the world, especially in regions like a basin which have the potential to affect other socioeconomical sectors in a closed area.

This study provides a first look in analyzing the spatial distribution of climate indices of two very different basins in Mexico from the geographic, socioeconomic and climate point of view. First, the Conchos River basin, located in the more developed northern central part of the country is a very dry region. Second, the Usumacinta River basin, located in the less developed and most humid southeastern part of the country.

The database used here is a 50-km regular grid for daily precipitation and surface temperature from 1960-2008, created by CICESE from the official climate stations data in Mexico. To create the mesh they performed a simple quality control data. From here, we analyze the spatial distribution of the Standardized Precipitation Index (SPI) and different climate indices related to climate extremes (drought and extended wet periods) for the two basins. In addition, a comparison is carried on surface temperature and precipitation trends and probability density functions for different time periods.

Our goal is to assess potential climate changes in these two very different basins in Mexico. It has been argued that these two regions are possibly connected through a dry-wet dipole given that droughts in northern Mexico frequently coincide with anomalously wet conditions over Mesoamerica, and vice versa (Mendez and Magaña, 2010).