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# Climate Change in Nicaragua: a dynamical downscaling of precipitation and temperature.

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Climate Change affects weather patterns and modifies meteorological extreme events like tropical cyclones, heavy rainfalls, dry events, extreme temperatures, etc. The aim of this study is to show the Climate Change projections over Nicaragua for the period 2010-2040 focused on precipitation and temperature. In order to obtain the climate change signal, the results obtained by modelling a past period (1980-2009) were compared with the ones obtained by modelling a future period (2010-2040). The modelling method was based on a dynamical downscaling, coupling global and regional models. The MPI-ESM-MR global climate model was selected due to the better performance over Nicaragua. Moreover, a detailed sensitivity analysis for different parameterizations and schemes of the Weather Research and Forecast (WRF-ARW) model was made to minimize the model uncertainty. To evaluate and validate the methodology, a comparison between model outputs and satellite measurements data was realized. The results show an expected increment of the temperature and an increment of the number of days per year with temperatures higher than 35°C. Monthly precipitation patterns will change although annual total precipitation will be similar. In addition, number of dry days are expected to increase.