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Improving downscaling: south america rainfall

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Climate variability and climate change influence the social and natural environments throughout the world, with consequent impacts on natural resources and industry that can be large and far-reaching. The main aim of this work is to develop and test a novel type of statistical downscaling technique based on the Artificial Neural Network (ANN), applied of the climate change. This work analyses the performance of the IPCC models (CCCma, CCSRNIES, CSIRO, GFDL and HACM3) in simulate the present and future climate using ANN. The ANN used here are based on a feed forward configuration of the multilayer perception that has been used by a growing number of authors. To carry out statistical downscaling for each meteorological date (grid point), the predictors and predictands were supplied to the models (ANN). Two experiment using: 1) ANN1, using training monthly (JANuary, FEBruary, and MARch) between 1961 to 1990, testing (JAN-FEB-MAR) between 1991 to 2000, and predictors output models from IPCC AR4; ANN2 training idem ANN1, testing idem ANN1, and predictors output models and observation rainfall.