



climate extremes in la-plata basin using artificial neural network

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Changes in extreme weather and climate events have significant impacts and are among the most serious challenges to society in coping with a changing climate (CCSP, 2008). Indeed the IPCC AR4 concluded that confidence has increased that some extremes will become more frequent, more widespread and/or more intense during the 21st century

The La Plata Basin covers about 3.2 million km². In terms of geographical extent, the basin is the fifth largest in the world and second only to the Amazon Basin in South America. The principal sub-basins are those of the Paraná, Paraguay and Uruguay Rivers.

La Plata Basin is particularly vulnerable to temperature and precipitation extremes. Particularly these latter phenomena affect the region's productivity, for example because of the great impact on the agriculture (due to the singular characteristics of this area, very flat and only a few meters above the sea level). In general, extreme rainfall events are caused by a wide variety of meteorological systems and almost in all time scales.

The main aim of this work is to develop and test a novel type of statistical extreme technique based on the Artificial Neural Network (ANN). This work analyses the performance of the IPCC models 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 extreme for each meteorological date (grid point), the predictors and predictant were supplied to the models (ANN) and spatial interpolation. This project is highly relevant to the CLARIS-LPB international project.