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A first overview of an ensemble of regional climate models over South America forced with 1989-2008 ERAinterim reanalysis

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The EU FP7 CLARIS LPB project (A Europe-South America Network for Climate Change Assessment and Impact Studies in La Plata Basin, 2008-2012) aims at predicting the climate change impact on hydroclimate and extreme events over La Plata Basin. As the first step to reach this goal, a group of regional climate models (RCMs) forced by 1989-2008 ERAinterim reanalysis have simulated the South American continent with 50km of horizontal resolution. The domains of the models are large enough to include the one proposed by CORDEX (A COordinated Regional climate Downscaling EXperiment). One of the most challenging climatic features of the South American continent is the large uncertainties shown by the global climate model simulations included in the last IPCC (2007). Within this regional climate model intercomparison exercise, the analysis of the spread in their results, related to their physical parameterizations, could be a key aspect that may help to understand the global models'shortcomings. In a first overview, seasonal mean temperature and precipitation are compared for each RCM available against CRU observations to evaluate their capability to describe the main climatic features of the continent. Some metrics were developed for a more specific analysis of the main atmospheric processes involved in the region, with special attention to the hydrological cycle and extreme events. This validation analysis of present climate period is also an essential first step issue needed for the following modelling studies of future climatic conditions that are going to be performed as a second step inside the CLARIS-LPB project.