Geophysical Research Abstracts
Vol. 13, EGU2011-12351, 2011
EGU General Assembly 2011

Modeling South America regional climate for present conditions from an ensemble of RCMs: model performance and uncertainties

Silvina Solman (1), Enrique Sánchez, Roberto García-Ochoa (2), Hugo Berbery (3), Patrick Samuelsson (4), Armelle Reca Remedio (5), Sin-Chan Chou, Jose Marengo (6), Rosmeri Porfirio da Rocha (7), Laurent Li (8), Natalia Pessacg (1), and Claudio Menendez (9)

(1) CIMA (CONICET-UBA)-DCAO (FCEN-UBA), Buenos Aires, Argentina, (2) U. de Castilla-La Mancha (UCLM), Toledo, Spain (e.sanchez@uclm.es), (3) U. of Maryland, Maryland, USA, (4) SMHI, Norrköping, Sweden, (5) MPI, Hamburg, Germany, (6) INPE, Sao Paulo, Brazil, (7) USP, Sao Paulo, Brazil, (8) LMDZ, Paris, France, (9) CIMA-CONICET, Buenos Aires, Argentina

Seven regional climate models included in the frame of FP7 EU (2008-2012) CLARIS-LPB project (A Europe-South America Network for Climate Change Assessment and Impact Studies in La Plata Basin), have been forced by ERAinterim reanalysis (1989-2008) to simulate the whole South American continent at 50km horizontal resolution, although a special attention is made over La Plata Basin (LPB) area. This domain is consistent with the one proposed in CORDEX (A COordinated Regional climate Downscaling EXperiment). Seven subregions are used for detailed analysis, 4 over LPB, but also other regions of interest over the continent, such as North-East Brazil, the Amazonian basin or the South American Convergence Zone (SACZ). The main issues are the evaluation of the capability of the RCM ensemble to represent observed climate, identifying their main strengths and shortcomings over South America. The degree of agreement among the different regional models will characterize the uncertainty of the climatic features analyzed. Thus, for example, all the models are able to describe the spatial characteristics of seasonal precipitation when compared against CRU observational database: the Amazonian maximum during the austral summer season, LPB seasonal patterns, North-East Brazil or SACZ features. Nevertheless, some shortcomings are also found, such as a underestimation of precipitation during June-July-August over Uruguay and during January-February-March over the Low-Parana basin. The spatial distribution of seasonal mean temperature and their seasonal cycles are generally well reproduced, when compared against CRU data. However, some systematic deficiences are evident in the RCMs, such as the overestimation over tropical areas by most of the RCMs, particularly over the Amazon basin, where also a large dispersion among models is found. A more complete analysis of the simulations is currently being performed, focusing not only on the correct description of the climatic features, but also on the aspects where models exhibit systematic biases or a large spread among them.