



South America Low-Level Jet and its effects on the precipitation over La Plata Basin

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Studies with climate models have shown a dry bias in precipitation over La Plata Basin region for both regional and global models, which suggests a common deficiency in simulating the precipitation of the region. These deficiencies could be tied with the models parameterizations, which are not able to capture the dynamical systems as for example the low level jet, resulting in a weak latitudinal and meridional moisture transport. The goal of this work was to analyze the simulated South America low level jet and its impacts on the precipitation over La Plata Basin using different model parameterizations. In this work we used the Regional Climate Model (RegCM4) over CORDEX South America Domain. The model results were compared against Era-Interim analysis and CRU data. The results show that the low level jet representation is tied to both the precipitation convection scheme and the land-surface scheme. Several combinations of both convection and land-surface scheme have been tested and this can result in a weaker or stronger representation of the jet. The optimal configuration has been obtained and the physical explanation is presented. The jet position and strength is clearly influencing the precipitation spatial distribution and intensity over La Plata basin and by modeling the correct position and intensity the jet the dry bias over this basin is reduced.