

Interactive comment on “Artificial neural networks and multiple linear regression model using principal components to estimate rainfall over South America” by T. S. dos Santos et al.

Anonymous Referee #1

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This paper is interested from two points of view. 1. The authors make analysis of future climate in one of the planet's regions that will be most affected by the climate change projected for the end of the 21st century and really there are few studies in these areas. 2. They used novelty techniques to include the trends given by the different models of CMIP5 project. However the article need more analysis before to be published. It is not clear why they use two techniques of analysis; artificial neural networks and multiple linear regression model using principal components. If the idea is to compare the two techniques, more comparison is necessary in the results, The authors must say which have more advantages in a more clear and concise model. The authors explain the statistic techniques but the discussion about the trends is poor. They only

C434

show the table 5 and is not clear the results shown there, which test of significance was used to evaluate if the values obtained are significant. I think that the authors should apply the test of Mann-Kendal to evaluate the trend along the periods 1971-2000 and 2071-2100. In this way they could know if there is trends in the present period and in the future period and moreover they should apply other significant test to know if the differences between the two periods are significant (for example a Wilcoxon rank sum test or other similar test). The quality of figures is a little low in my pdf, but maybe is a problem of the pdf, please revise them. The idea of the paper is very interesting because in this way each model have a specific weight in the future projections, but it need more work in the results.

Interactive comment on Nonlin. Processes Geophys. Discuss., 2, 1317, 2015.

C435