Quantification of uncertainties of global climate models over southern South America

<u>Josefina Blazquez</u>[†]; Mario Nuñez [†]Centro de Investigaciones del Mar y la Atmosfera (CIMA), Argentina Leading author: <u>blazquez@cima.fcen.uba.ar</u>

It is known that climate change projections of global climate models for the next decades are characterized by high uncertainty over the most regions of the world and in particular over southern South America. It is also known that for decision makers it is very important to know how reliable a projection is. For those reasons, this work presents a detailed study of the uncertainties in the projections of surface temperature and precipitation for the near term and the end of the 21st century over the some areas of South America. It is very important to differentiate the uncertainties sources, because they vary not only with the variable but also with the time of the projection and with the emission scenarios. In this study only internal variability and model uncertainty is taken into account to quantifying each uncertainty source for temperature and precipitation. Although the scenario's uncertainty is relevant in temperature at the end of the current century, for precipitation, this uncertainty is negligible. The results show for both temperature and precipitation that the major sources of uncertainties in the near future are the model and the internal variability uncertainties, while for the end of the 21st century the internal variability decays and the model uncertainty shows predominance. The results also allow to identifying the regions over southern South America where the model uncertainty is more important than internal variability and vice versa, and areas where the signal is greater than the noise.