Resumen

Fresh water availability is one of the key challenges under climate change for the present century in La Plata Basin (LPB) in Southeastern South America. LPB is the fifth largest water basin in the world covering parts of five countries: Argentina, Brazil, Bolivia, Paraguay and Uruguay. A large fraction of the economic activities within the basin rely on water availability, including agriculture, river navigability and hydroelectric production, and therefore any variations in the water cycle of the basin could have significant impacts on the economy of each country. During the last decades, this region has been subject to positive trends in many variables relevant for socio-economic activities like precipitation, river flows and floods as well as extreme temperatures. Additionally, large areas of LPB are projected to get wetter and warmer in the upcoming decades with an increase in streamflow in most of the rivers and with more frequent and lasting fluvial flooding events. In this context, Argentina is preparing its National Adaptation Plan to Climate Change considering observed and projected changes that in all cases are consequence of increase global warming as a result of GHGs forcing. The main objective of this project is to assess the possible effects of SRM in the hydroclimate of LPB. We will analyze changes in different variables: mean and extreme temperature and precipitation, evapotranspiration, runoff and main rivers' mean and extreme discharges. Additional information on possible future climates and hydrological impacts because of solar geoengineering techniques will be relevant both for the analysis of adaptation options and for the international climate change negotiations. Developing countries are participating more actively in international negotiations and this project will also contribute with material to better inform negotiators on possible effects of SRM in LPB and in the Argentine sector of the basin.