Joint occurrence of temperature and precipitation extreme events in Argentina

Barbara Tencer[†]; Matilde Rusticucci [†] University of Buenos Aires, Argentina Leading author: <u>btencer@at.fcen.uba.ar</u>

Temperature and precipitation extreme events have been widely studied along the globe since their occurrence severely influences the society and the ecosystem. Agriculture, energy demands, human health, among others, can be affected both by extremely high or low temperatures and by extremely dry or wet conditions. The simultaneous or proximate occurrence of both types of extremes leads to more disastrous consequences. For example, a dry period can have more negative consequences on the agriculture if it is overlapped with or followed by a period of extremely high temperatures. Few studies have analysed the occurrence of an extreme period both in terms of temperature and precipitation simultaneously. In this study, the joint occurrence of dry or wet conditions and high or low temperature events is described at different stations from Argentina based on the daily data from the observational period (twentieth century). The simultaneous occurrence of both types of extremes is analysed, as well as the occurrence of one type of extreme immediately followed by the other type. Different extreme severity levels are considered for both types of extremes by considering different thresholds. Even more, projected changes in precipitation under a climate change scenario are more uncertain than projections in temperature changes. Therefore, the understanding of the relation between precipitation and temperature extreme events in the past will help to reduce the uncertainties associated with projected changes in precipitation.