# Probabilistic assessment of rainy season onset forecasts for São Paulo

Caio A. S. Coelho[1], Mari A. F. Firpo[1], Aline Maia[2]

[1] CPTEC/INPE, [2] EMBRAPA, Brazil

Prior knowledge about the likelihood of an early or late onset of the rainy season is an important societal demand. Several sectors including agriculture, energy production, water management and public health are constantly looking for this information to help strategic decisions. The use of a pre-defined criterion applied to historical rainfall records allows the construction of climatological distributions of rainfall onset dates. With this historical information it is possible to diagnose for example the mean and most likely rainfall onset dates, and the earliest and latest onset dates ever observed, which provide some indication about rainfall onset characteristics. However, for practical applications these climatological characteristics might not be sufficient for strategic decisions. Forecasts indicating whether the rainy season onset is more or less likely to occur earlier or later than the mean onset dates estimated from historical records have the potential to provide important complementary information for decision making. This study will present an assessment of probabilistic rainy season onset forecasts for São Paulo, Brazil, produced with a) a simple empirical cox-regression model, b) a dynamical coupled ocean-atmosphere model (the UK Met Office, GloSea 5 model), and c) a procedure that combines the empirical and dynamical model onset forecasts. São Paulo is located in a region in Brazil with a well defined wet season during the austral summer monsoon period. Preliminary results of these probabilistic rainy season onset forecasts assessment for São Paulo indicate good potential for successfully indicating whether or not the rainy season is more likely to start early or later the historical mean start date.