

Planetary scale climatic indices and their correlation with precipitation in São Paulo

Luciana Prado[†]; Juliana Marson; Augusto Pereira; Dalton Sasaki; Natalia Signorelli; Marcos Tonelli; Ilana Wainer

[†] University of Sao Paulo, Brazil

Leading author: luciana.prado@usp.br

São Paulo State (SPS) is the most important economical region in Brazil, where energy power and agriculture depend mainly on water availability. Therefore, it is important to identify the long term relationships between SPS precipitation (PPT) regime and climate variability patterns. The detection of these possible dependences imply on a better planning of use to water resources. In this sense, SPS was divided into four regions (north, south, east and west), and the GPCP (Global Precipitation Climatology Project) rainfall spatial mean time series of each region were correlated to the relevant climatic indices, computed using NCEP/NCAR Reanalysis. Results show that only filtered rainfall time series on decadal time scale have significant correlation with the climatic indices. Precipitation from the eastern area of SPS presented positive correlation with the Pacific Decadal Oscillation (PDO) and Southern Annular Mode (SAM). This reveals that rainfall variability in the coast of SPS is well connected to the extratropics. An additional analysis of the temperature time series shows a positive correlation with the Tropical Atlantic sea surface temperature, and the North Atlantic Oscillation (NAO) in the north and east of SPS. Thus temperature changes in SPS shows a relationship with tropical and extratropical Atlantic Ocean variability.