



Drought Characterization over South America within the Recent Observational Record

Joao Gerd Zell de Mattos, Luis Gustavo de Goncalves, and Carlos Frederico Bastarz

Center for Weather Forecast and Climate Studies(CPTEC),National Institute for Space Research(INPE),Cachoeira Paulista, Brazil (joao.gerd@cppec.inpe.br/+55 12 31012835)

Drought is a natural phenomenon that can impact various sectors of human activity and affect remote regions of the planet. Its detection and monitoring are important for decision makers and mitigation is crucial for impact minimization. Drought events around the world are often characterized by several statistical indexes and the most useful and popular is the Palmer Drought Severity Index (PDSI). The PDSI requires as little information as precipitation and temperature and its parameters have been extensively adjusted for North American regions. For South America though, there are very few initiatives for applying PDSI and only for very limited number of regions. There is, however, a great number of useful drought characterization indexes such as Standardized Precipitation Index (SPI), soil moisture anomalies and streamflow statistics among others nonetheless, PDSI still gives a reasonable characterization of the terrestrial water balance since it uses minimum statistics and can be applied for any place in the world, allowing comparison between different regions. This study presents a continental scale drought characterization within the recent observational record. For that purpose the Noah Land Surface Model (LSM) will be employed, using as meteorological forcing the Climatology Research Unit (CRU)-based dataset of near surface atmospheric variables from 1948-2006 over South America. In addition to PDSI other methods such as SPI, soil moisture percentiles and precipitation deciles analysis will be presented. Particular emphasis is given to the relationship between drought and El Nino/La Nina occurrences and also the 2005 drought event in Amazonia. This study leads to a better understanding of the spatial distribution of drought and its relation with the different precipitation patterns over South America. Also it serves as an important source information drought monitoring tools design.