

An observational evidence of decrease in Indian summer monsoon rainfall in the recent three decades of global warming era

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Abstract

The variability of summer monsoon over India has been studied using the subdivisional rainfall amounts for the period 1871-2012, Upper air temperature, Sea Surface Temperatures [SSTs] and zonal wind components for the period 1953-2012. It is observed that the rainfall activity over India during the last three decades has decreased. CRU [Climate Research Unit] and GPCP [Global Precipitation Climatology Project] rainfall data sets also exhibit a declined rainfall activity over a major part of India. This decrease in rainfall is associated with the decrease in the north-south SST gradient over the North Indian Ocean as well as monsoon circulation over India and neighborhood. Further, a decrease in the soil moisture over a major part of India is observed in the warming environment.