

Trends of four common climate change indices related to extreme precipitation events during the typhoon season (July-October) from 21 stations in Taiwan are investigated using a robust nonparametric method. Upward trends in precipitation intensity and 5-day total precipitation amounts prevail from 1950 to 2010. Longer drought duration is also noted, particularly in southern Taiwan. Daily precipitation during the typhoon season is further partitioned into typhoon and monsoon rainfall. Precipitation intensity induced by typhoons and monsoon systems has both increased over the last 60 years. More recently, a non-stationary extreme value distribution is applied to examine changes on three different return levels (2-year, 20-year, and 100-year) based on annual maximum 24-h precipitation. A majority of stations show an increasing trend in return levels during the typhoon season since 1950s. That is, heavy rainfall events caused by typhoons have become heavier.