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Decadal Variations of Extreme Rainfall Events in South Africa

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Extreme rainfall events over the continents cause severe damages to populated regions of the world. Because of their obvious influences on the river discharges, these extreme events could also affect the water composition and marine ecosystems near the large estuaries. Therefore, it is important to study the rainfall extremes in some of the vulnerable regions of the world for better assessments of the impacts and the associated processes.

In this study, the extreme rainfall events over South Africa were examined using daily gridded rainfall data of South Africa. The rainfall distribution is subjectively separated over space and time to understand the spatio-temporal variations of the rainfall. It is found that the regions in northeast and southwest show strong decadal variations. Linear trends though apparent are not significant in these regions. Decades with persistent years of extreme rainy events are found to be mostly associated with La Nina whereas decades with persistent years of extreme dry events are mostly associated with El Nino. This suggests that the large-scale climate variations have huge impacts on the extreme events of the region and thereby the associated changes in continental ecosystem.

Keywords: extreme, rain, south africa