



Decreasing trend in severe weather occurrence over China during the past 50 years

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Understanding the trend of localized severe weather under the changing climate is of great significance but remains challenging which is at least partially due to the lack of persistent and homogeneous severe weather observations at climate scales while the detailed physical processes of severe weather cannot be resolved in global climate models. Based on continuous and coherent severe weather reports from over 500 manned stations, for the first time, this study shows a significant decreasing trend in severe weather occurrence across China during the past five decades. The total number of severe weather days that have either thunderstorm, hail and/or damaging wind decrease about 50% from 1961 to 2010. It is further shown that the reduction in severe weather occurrences correlates strongly with the weakening of East Asian summer monsoon which is the primary source of moisture and dynamic forcing conducive for warm-season severe weather over China.