



Long-term trends of typhoon-induced rainfall over Taiwan: in situ evidence of poleward shift of typhoons in western North Pacific in recent decades

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Tracks of tropical cyclones or typhoons in the western North Pacific have recently been shown to shift northward in the past several decades; the poleward shift has been attributed to the expansion of the tropics due to climate warming. Here we use 64-year, hourly rainfall observations around Taiwan, and take advantage of the unique terrain and geographic location of the island with respect to typhoon tracks, to show that since 1950 the typhoon-related rainfalls have been rising on the western side of the island, but decreasing on the eastern side. We show that these extraordinary rainfall patterns, despite the smallness of Taiwan, are indicative of a northward shift of typhoons related to the changes in the wind fields and surface warming over the Indian and Pacific tropical/subtropical regions.