



## **Analysis of Spatial Distribution And Statistical Characteristics of Typhoon In The Western Pacific Based On Spatial Point Model**

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Typhoon is a kind of strong weather system formed in tropical or subtropical oceans. China, located on the west side of the Pacific Ocean, is the country affected by the typhoon most frequently and seriously. To provide theoretical support for effectively reducing the damage caused by typhoon, the variation law of typhoon frequency is explored by analyzing the distribution of typhoon path and landing sites, sphere of influence, and the statistical characteristics of typhoon for every 5 years.

In this study, the typhoon point data set was formed using the Best Path Data Set ( $0.1^\circ \times 0.1^\circ$ ) compiled by China Meteorological Administration from 1950 to 2014. By using the tool of Point to Line in software ArcGIS, the typhoon paths are produced from the point data set. The influence sphere of typhoon is calculated from Euclidean distance of typhoon, whose threshold is set to  $1^\circ$ . The typhoon landing site was extracted by using the Chinese vector layer provided by the research group. By counting the frequency of typhoons, the landing sites, and the sphere of influence, some conclusions can be drawn as follows.

In recent years, the number of typhoons generated has been reduced, typhoon intensity is relatively stable, but the impact of typhoon area has increased. Specific performance can be seen from the typhoon statistical and spatial distribution characteristics in China. In terms of frequency of typhoon landing, the number of typhoons landing in China has increased while the total number of typhoons is reduced.

In terms of distribution of landing sites, the range of typhoon landing fluctuates. However, during the process of fluctuation, the range is gradually expanding. For example, in south of China, Hainan Island is affected by typhoon more frequently meanwhile China's northeast region is also gradually affected, which is extremely unusual before.

**Key words:** spatial point model, distribution of typhoon, frequency of typhoon