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1951-2006年西北太平洋热带气旋活动时空

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Title: Spatiotemporal characteristics of tropical cyclone activities in northwestern Pacific from 1951 to 2006

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关键词: 西北太平洋; TC; 最佳路径数据; 时空特征

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摘要: 西北太平洋是全球热带气旋(TC)发生次数最多、强度最大的区域之一,其TC研究受到该区域学者的广泛关注。基于日本气象厅(JMA)东京台风中心西北太平洋TC最佳路径数据资料,分析了该区域1951-2006年的TC频数和强度时空分布特征。首先,统计和分析了56年间(1951-2006年)TC的年际和年内变化,并通过建立1° ×1° 网格计算了落在每个网格内的TC次数,分析了多年TC的空间分布格局;其次,根据国际气象组织按照风速划分TC等级的标准,统计和分析了56年间不同强度TC的年际和年内特征,通过风速强度指数计算,获取了1° ×1° 网格单元区域内遭受TC影响的强度等级。结果显示,区域频数和强度时空分布规律较好地反映了该区域的TC影响特征,进而为区域台风灾害预报以及台风灾害风险评估提供了支持。

Abstract: The northwestern Pacific is one of the areas where the tropical

cyclone (TC) occurs with the highest frequency and the maximum intensity. Extensive attention has been paid to the research of TC in this area. Based on the optimum track data for TC in northwestern Pacific provided by the Japan Metrology Agency (JMA), the spatiotemporal variation characteristics of both the frequency and intensity of TC from 1951 to 2006 were comprehensively analyzed herein. First, the annual and monthly variations of TC during the 56 years were analyzed statistically, and by calculating the TC frequency in each 1° ×1° longitude-latitude grid, the spatial distribution was analyzed. Second, in accordance with the WMO standards of TC classification by wind speed, the annual and monthly variation of different intensities of TC during the 56 years was analyzed. Then, by calculating wind intensity indices, the influence extent of TC on each 1° ×1° longitude-latitude grid was acquired. The results show that, the regional distribution pattern of the frequency and intensity reflects the characteristics of the TC influence well, and provides a support for both the forecast and risk assessment of the typhoon disaster.

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