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江苏省近30年冰雹灾害的时空变化规律(PDF)

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Title: Spatiotemporal change patterns of hail disaster in Jiangsu Province during recent 30 years

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关键词: [冰雹](#); [时空分布](#); [降雹路径](#); [Mann-Kendall方法](#); [气候变暖](#)

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摘要: 利用江苏省70个气象台站1980-2009年间的冰雹观测资料,分析了江苏省冰雹灾害发生的时空变化特征,并结合Mann-Kendall方法探讨了气候变暖对江苏省冰雹发生趋势的影响。研究表明:(1)江苏省上世纪80年代为降雹多发期,90年代明显减少,本世纪初以来又有明显回升趋势;(2)江苏省一年中降雹多发季为春、夏两季,降雹日约占全年总降雹日数的94.7%;(3)全省降雹空间分布的总体特征是:东部沿海多,西部内陆少;中北部多,南部少;(4)这30 a中发生在江苏省的降雹路径主要有四条;(5)与江苏省冰雹灾情年际不稳定性成正相关的雹日空间变异系数自东北向西南递增;(6)导致这30 a江苏省冰雹时空变化格局的主要成因是全球气候变暖、大气环流背景、局地中小尺度大气动力场、地形起伏和下垫面热力属性等。

Abstract: Based on the observed hail data of 70 meteorological stations in Jiangsu Province from 1980 to 2009, this paper analyzed the temporal and spatial distribution characteristics of hails, and discussed the influence of the climate warming on the occurrence tendency of hail disasters in the province using Mann-Kendall method, a tool of detecting the extraordinary climate variations. The results

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show that: (1) the highest frequency of hailing occurred in the 1980s, and reduced significantly in the 1990s, while since 2000, the occurrence had a remarkable raising tendency. (2) The main seasons for hails to occur in Jiangsu Province are spring and summer, which account for 94.7 percent of the total hailing days in a year. (3) The spatial distribution of hailing in the province is that, eastern coastal regions are more often attacked than the western inland regions, and the middle and north parts of the province got more hailing days than the south parts. (4) In recent 30 years, the hailing paths appearing in the province has four routes. (5) The spatial variance coefficient of hailing days which is positive correlative to the annual instability of hailing calamity increases progressively from northeast to southwest of the province. (6) The main mechanisms that result in this spatio-temporal change situation of hails in the province are the global climate warming, the backgrounds of atmospheric circulation, the local atmospheric dynamic fields, the landforms undulation and the thermodynamics attributes of the surface.

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