



Temporal and Spatial Distributions of Hourly Rain Intensity and Recurrence Periods in Eastern China

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In this paper, by collecting and dealing with the surface air observation data, the hourly rain intensity data in 15 years has been gotten in 485 stations in China. Through probability distribution analyses and statistical test, the time and space distribution features of hourly rain intensity are analyzed. By the way, some recurrence periods of the maximum of hourly rain intensity are preliminarily estimated.

Firstly, the hourly rain intensity distribution character in different levels has been analyzed for the whole year and four seasons. The result shows that the frequencies of rain intensity increase from north to south. There were several high value areas: one was in the southern Anhui and northern Jiangxi province, the others were in the south coastal areas and Hainan. Besides, some small high value areas also appeared in the south Yunnan.

Using the appearance frequency analyze method for four periods of one day, the daily variation of rain intensity has been investigated. As a whole, the features of daily variation were different in different areas. But the differences among the rain intensity of different levels were less.

Furthermore, the recurrence periods of 30, 50, 80, 100 years of the maximum of hourly rain intensity were estimated primarily. It seems that their distribution trends were consistent. The maximum area was in the southeast coastal range. The second one was in the middle and low reaches of Yangtze and Huaihe river. The maximum of hourly rain intensity in 100 years can reach 100-150mm/h in these regions.