

From Fig.3, Fig.4 and Table.2, it is observed that the correlation coefficients between the increase in urban population and the expansion of built-up area and precipitation are small without obviously direct linear correlation, so the impact of that on precipitation in Nantong is not very distinct. The influence of urbanization in Nantong on precipitation mainly derives from the effect on temperature. Heat island effect resulted from the increase in temperature is conducive to the formation of thermal convection, thereby forming convective precipitation. The increase in types of high-rise buildings in city may cause the mechanical turbulence, thus slowing down the movement of the system of precipitation, resulting in the enhancement of intensity of precipitation and the extension of the time of rainfall. It is found that the direct effects of population and built-up area on climate change in Nantong are small and negligible whose correlation coefficients are 0.0022 and 0.0086, respectively, which is different from Nanjing and Ningbo. Meanwhile, this paper reveals that the impact of the development of city on precipitation is a multi-disciplinary result that is not merely determined by one aspect.

4 Conclusions

This paper studies the city with the rapid development of economy, Nantong. Through the analysis for the period of nearly 30 years of the correlation between the process of urbanization and climate evolution in Nantong, the effect of the development of urbanization on climate change is further explored. Results show that there is a certain influence of urbanization on climate change in Nantong. During the twenties years of the rapid development of urbanization in Nantong, mean temperature, max-mean temperature, min-mean temperature and average precipitation suffered different degrees of rise, and the correlation between urbanization and climate change is larger. But the direct effect of urbanization on precipitation is not significant with a very small correlation.