

Exploring the Correlation between Population Distribution and Urban Heat Island under Urban Data: Taking Shenzhen Urban Heat Island as an Example

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Abstract : Shenzhen is a modern city of China's reform and opening-up policy, the development of urban morphology has been established on the administration of the Chinese government. This city's planning paradigm is primarily affected by the spatial structure and human behavior. The subjective urban agglomeration center is divided into several groups and centers. In comparisons of this effect, the city development law has better to be neglected. With the continuous development of the internet, extensive data technology has been introduced in China. Data mining and data analysis has become important tools in municipal research. Data mining has been utilized to improve data cleaning such as receiving business data, traffic data and population data. Prior to data mining, government data were collected by traditional means, then were analyzed using city-relationship research, delaying the timeliness of urban development, especially for the contemporary city. Data update speed is very fast and based on the Internet. The city's point of interest (POI) in the excavation serves as data source affecting the city design, while satellite remote sensing is used as a reference object, city analysis is conducted in both directions, the administrative paradigm of government is broken and urban research is restored. Therefore, the use of data mining in urban analysis is very important. The satellite remote sensing data of the Shenzhen city in July 2018 were measured by the satellite Modis sensor and can be utilized to perform land surface temperature inversion, and analyze city heat island distribution of Shenzhen. This article acquired and classified the data from Shenzhen by using Data crawler technology. Data of Shenzhen heat island and interest points were simulated and analyzed in the GIS platform to discover the main features of functional equivalent distribution influence. Shenzhen is located in the east-west area of China. The city's main streets are also determined according to the direction of city development. Therefore, it is determined that the functional area of the city is also distributed in the east-west direction. The urban heat island can express the heat map according to the functional urban area. Regional POI has correspondence. The research result clearly explains that the distribution of the urban heat island and the distribution of urban POIs are one-to-one correspondence. Urban heat island is primarily influenced by the properties of the underlying surface, avoiding the impact of urban climate. Using urban POIs as analysis object, the distribution of municipal POIs and population aggregation are closely connected, so that the distribution of the population corresponded with the distribution of the urban heat island.

Keywords : POI, satellite remote sensing, the population distribution, urban heat island thermal map

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