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## Characteristics of Disaster-causing Heavy Rainfall in Taipei City and Its Application

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The most challenging weather phenomenon for disaster response in Taipei City is localized short-duration heavy rainfall. The capacity of each administrative district to withstand rainfall intensity varies, leading to incidents of flooding even when the rainfall falls short of the designed protection standard of 78.8 mm/h for drainage systems. To enhance disaster response, the Taipei City Fire Department conducts investigations and reports based on rainfall conditions. By integrating the intelligence and reporting system and raising the dispatching standard from 20 to 40 mm/h, the "Heavy Rainfall Response Process Improvement" project has successfully reduced response operation time and alleviated service burdens, advocating for adopting higher standards.

This study explores the correlation between intense rainfall and disaster occurrences, examining thunderstorm events that caused significant flooding in over three administrative districts. The study compares the earliest reported flooding time in each district with the corresponding rainfall, revealing that several districts experienced flooding with less than 60 mm/h of rainfall at the onset, indicating heightened vulnerability. Additionally, the study delves into the relationship between rainfall patterns and disaster potentials. When it accumulates 40 mm of rainfall within 30 minutes, there is a 63% chance of reaching 60 mm accumulation in the following 10 to 20 minutes. This analysis underscores the potential application of cumulative rainfall within the first 30 minutes for predicting subsequent rainfall trends and issuing disaster warnings.