

Linking typhoon tracks with rainfall patterns and flood timing

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Being able to predict the timing and amount of flooding during and following a hurricane or typhoon would improve early warning and mitigation efforts. However, variable typhoon tracks and interaction between typhoons and varied landscapes make flood prediction challenging.

Huang et al. investigated the detailed distribution of typhoon-induced rainfall over a mesoscale mountainous [watershed](#) located in eastern Taiwan, a region that is regularly affected by severe typhoons-losses associated with typhoons in Taiwan can reach \$500 million per year. The researchers analyzed high-resolution [radar observations](#) of 38 rainfall events during 2000-2010 in eastern Taiwan to study the relationship between typhoon track, [rainfall patterns](#), and the timing of peak flooding.

On the basis of the statistical characteristics of these events, they identify three different types of rainfall patterns. They find that the different types of rainfall patterns are correlated with different typhoon tracks and linked flood peak times to the rainfall types and typhoon tracks. For instance, the peak flood time for one of their identified rainfall patterns - a pattern with an approximately north- northeast-south-southwest oriented rainfall belt across the downstream area of the watershed they studied - was 3 hours earlier than peak flood time for other rainfall patterns.

They suggest that the relationships are due to the typhoons' interaction

with the mountainous landscape in the region. Their study could lead to improved real- time flood warning systems in Taiwan and other typhoon-prone regions.

More information: Linking typhoon tracks and spatial rainfall patterns for improving flood lead time predictions over a mesoscale mountainous watershed, *Water Resources Research*, [doi:10.1029/2011WR011508](https://doi.org/10.1029/2011WR011508) , 2012

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