

國立中山大學應用數學系

學術演講

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講題：From Statistical Modeling to Early Warning of Extreme Events in Taiwan

時間：2025/11/6 (Thursday) 14:10 ~ 15:00

地點：理 SC 4009-1 教室

茶會：13:45

Abstract

Extreme events pose significant risks to society, making both rigorous statistical modeling and timely early warning crucial. This study advances the statistical foundation of extreme value analysis by extending the peaks-over-threshold generalized extreme value (PoT-GEV) model into a spatial hierarchical framework with temporal effects. Spatial dependence is modeled via a latent Gaussian process on the PoT-GEV parameters, while temporal covariates capture time-varying influences. To overcome the computational burden of traditional Markov chain Monte Carlo methods, we adopt the Laplace approximation, enabling efficient and scalable inference. The proposed approach is evaluated through comprehensive simulation studies under diverse scenarios, demonstrating robust performance in capturing spatial and temporal dynamics of extremes. Finally, its practical utility is illustrated by analyzing extreme rainfall events in Taiwan, highlighting the potential of statistical modeling to contribute toward effective early warning systems for climate-related hazards.

敬 請 公 告 ！ 歡 迎 參 加 ！

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