國立成功大學統計學系暨數據科學研究所
專題演講

演講者: Prof. Hong-Ding Yang (楊洪鼎 助理教授)
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時　間: 2021年05月06日 (星期四) 15:30 - 16:30

地　點: 統計學系三樓視聽教室 (62331)

茶　會: 15:00 - 15:25 (統計學系二樓教師休息室)

題　目: Identifying risk area based on longitudinal spatial count data with excess zeros

摘　要

We introduce a Bayesian hierarchical model to describe spatiotemporal correlated count data with excess zero outcomes. The model is based on zero-inflated Poisson (ZIP) regression to characterize the spatiotemporally varying intensity and the extra possibility of zero outcomes. To take the spatiotemporal correlation into account, we assign a mixed-effects linear model for the intensity with a modified conditional autoregressive model. The probability of pure zero in the ZIP is designed to depend on locations but free of time. The proposed method avoids the computational suffering from spatiotemporal modeling, and we analyzed the tornado touchdown data in Kansas from 1950 to 2015 as a demonstration. The estimated probabilities of no tornado touchdowns help us assess the risk of tornado touchdown across the 105 counties in Kansas.