

國立中正大學數學系
暨應用數學碩士班、統計科學碩士班
學 術 演 講

Featuring the Spatiotemporal Aggregation of Avian Influenza Virus (AIV) Outbreaks in Taiwan

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Abstract

Infectious diseases often exhibit spatial and temporal clustering. We applied the Knox test and likelihood ratio statistics to identify spatiotemporal clusters. By comparing time-varying second-order aggregation with the standard deviational ellipse, we characterized the dynamic patterns of disease transmission. Because non-endemic avian influenza virus (AIV) outbreaks may be associated with introductions by wild birds, we used data from the *citizen scientists* eBird database to explore bird distributions and assess their potential role in introducing AIV to poultry farms.

First, an autoregressive logistic model was used to estimate the occupancy probability of selected migratory wild bird species while accounting for terrestrial factors through multivariate adjustment. Second, a matched-pair study design combined with *bootstrap resampling* was employed to assess the risk posed by each species for introducing AIV using *propensity score matching*. Ten migratory bird species were identified as having non-negligible introduction risks. Finally, an additive–multiplicative model was used to generate a risk map, which served as a guide for targeted surveillance of highly pathogenic influenza (HPI) outbreaks.

日 期：115 年 10 月 14 日(星期三) 16:10~17:00

地 點：本校數學館 527 教室（嘉義縣民雄鄉大學路 168 號）

茶 會：15:30~16:00 數學館四樓 409 室舉行

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