



## Can rainfall be a useful predictor of epidemic risk across temporal and spatial scales?

**Tuesday, July 31, 2018**

**08:50 - 09:10**

 *Hynes Convention Center - Room 312*

Plant disease epidemics are largely driven by within-season weather variables when inoculum is not limiting. Commonly, predictors in risk assessment models are based on the interaction of temperature and wetness-related variables, relationships which are determined experimentally. There is an increasing interest in providing within-season or inter-seasonal risk information at the region or continent scale, which commonly use models developed for a smaller scale. Hence, the scale matching dilemma that challenges epidemiologists and meteorologists: upscale models or downscale weather data? Successful applications may be found in both cases, which should be supported by validation datasets whenever possible, to prove the usefulness of the approach. For some diseases, rainfall is key for inoculum dispersal and, in warmer regions (e.g., tropics) where temperature is less limiting for epidemics, rainfall extends wetness periods. The drawbacks of using rainfall at small scales relate to its discrete nature and high spatial variability. However, for pre- or early-season predictions at large spatial scales sources of reasonably accurate rainfall summaries are available and may prove useful. The availability of disease datasets at various scales allows the development and evaluation of new models to be applied at the correct scale. We will showcase examples and discuss the usefulness of rainfall as key variable to predict soybean rust and wheat scab from field to region.

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