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Desynchronization and spatial effects in multistrain diseases LEAH SHAW, Naval Research Lab, LORA BILLINGS, Montclair University, IRA SCHWARTZ, Naval Research Lab — Dengue fever, a multistrain disease, has four distinct co- existing serotypes (strains). The serotypes interact by antibody- dependent enhancement (ADE), in which infection with a single serotype is asymptomatic, but contact with a second serotype leads to serious illness accompanied by greater infectivity. We present a compartmental model for multiple serotypes with ADE, and consider autonomous, seasonally driven, and stochastic versions of the model. Spatial effects are included in a multipatch model. We observe desynchronization between outbreaks of the different serotypes, as well as desynchronization between spatially distinct regions.

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