

Modeling the dynamics of stress propagation in disaster situations is crucial for effective emergency response planning and risk management. In this paper, we present a macroscopic first-order compartmental advection–diffusion–reaction model that describes how populations in two separate interconnected zones Ω_1 and Ω_2 , via their human behaviors (compartments) that represent the stressed and non-stressed populations respectively, interact via stress contagion within each zone and migration between these two zones, spatial propagation is also considered.