CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

Webinar
Systems and Control Group - CIDMA

16 de abril de 2021, 16h00

Departamento de Matemática, Universidade de Aveiro

Investigating the role of temperature in dengue transmission in emerging regions

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Abstract

Dengue, a tropical virus transmitted by the mosquito species Aedes aegypti, has been emerging and spreading in naïve populations in temperate regions across the globe. This increase in transmission has been driven by numerous factors including higher temperatures and more erratic precipitation patterns caused in part by global climate change. Temperature and precipitation impact various parts of the dengue transmission cycle, including mosquito development and survival and the incubation period of the virus in the mosquito. With the continuing threat of climate change, it is critical that we develop a better understanding of meteorological influences on the spread of dengue. Here, we expand a classic vector-host epidemiological ordinary differential equations model to include seasonality in temperature to investigate its potential influence on dengue transmission in temperate regions where dengue is emerging. As a case study, we explore recent dengue emergence in the city of Córdoba, Argentina, which had its first ever dengue outbreak in 2009 and has since experienced yearly transmission and four additional large outbreaks. We discuss the importance of our findings for endemic and emerging populations and discuss the potential implications of our results for mosquito control and dengue mitigation strategies in these regions.

Online session: `https://videoconf-colibri.zoom.us/j/87103199360`

This seminar was supported in part by the Portuguese Foundation for Science and Technology (FCT – Fundação para a Ciência e a Tecnologia), through CIDMA - Center for Research and Development in Mathematics and Applications, within project UIDB/04106/2020.

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