Persistence of a population in the presence of shifting climate enveloppe

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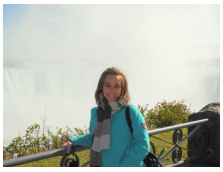

For the last decade, there have been several studies on the effect of climate change and more precisely the effect of shifting climate enveloppe on the persistence of a population. In this presentation I will present different results obtained regarding the persistence of a population in the presence of shifting climate envelope and how these results varies from one framework to another.
For instance, in the framework of reaction-diffusion equations, early works by Berestycki et al have shown the existence of a critical shifting speed separating persistence from extinction of the population and that this critical speed is independent of the initial condition, when the reaction term is of KPP type (no Allee effect in the population). My recent work with T. Giletti investigates the existence of such a critical shifting speed in the case of a monostable reaction term (weak Allee effect can be included) and the dependence of this critical speed with the initial condition. This shows how the results differ when we consider different type of growth fonction. These type of questions have also been studied in the framework of integro-difference equations, mostly for KPP type of growth. I will also discuss the different results obtained in this framework in comparison with the ones obtained in the reaction-diffusion framework.