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# Integro-difference equations and climate change in a variable environment

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## Résumé

Climate change is known to have a strong impact on population distribution, forcing some species to migrate northward in order to follow their favorable habitat. In this presentation, we investigate the impact of climate change on the persistence of the population, when the latter grows and disperses at different times. In this framework we consider integro-difference equations, with an habitat that is shifting at a given speed at each generation. We also include in our model the variability of the environment from one generation to the next, considering a shifting speed and a growth function that are chosen randomly at each generation. We will start by detailing the model and its assumptions. Then we will explain how to characterise the persistence of the population at large time. Finally we study the effect of variability on the persistence of some butterfly population using numerical simulations.

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