
Some statistical models to quantify the effect of climate change on whales in Greenland

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Résumé

Human activities have a profound impact on marine ecology in Greenland. In this presentation, I will focus on a study of the impact of these anthropogenic activities on narwhals, one of the endemic species of whales in Greenland. I will present different stochastic models to analyze the data from this study: point process with memory, stochastic Langevin diffusions, stochastic diffusions in a constraint domain. I will discuss more in detail the diffusion processes which can be multidimensional, hypoelliptic (with a degenerate noise) and partially observed. I will discuss the question of parameter estimation when only discrete observations are available. New estimation methods involve numerical schemes called splitting schemes, that prove to be numerically very stable.

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