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

Seminário

Grupo de Probabilidades e Estatística

16 de março de 2022 15:30 Sala 11.1.27

Geostatistical analysis of sardine eggs data: dealing with zero-inflated data and extreme values

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Abstract

Understanding the spatial distribution of animals, during all their life phases, as well as how the distributions are influenced by environmental covariates, is a fundamental requirement for the effective management of animal populations. This is especially the case for populations which are harvested. The sardine is one of the most important fisheries species in Portugal, both for its economic, sociologic, anthropologic and cultural values. Here we intend to understand the spatial distribution of the sardine eggs density. Our main objective is to make accurate predictions in spatial points that were not observed. The data structure presents an excess of zeros and extreme values relative to the common chosen distributions to fit this data. To deal with this, we propose a geostatistical Gamma-GP hurdle model to jointly model the probability of presence with the positive sardine eggs density, and the probability of exceeding a specified threshold with the corresponding exceedances.

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