

# First Joint Meeting Brazil Italy of Mathematics Special Session: Analytical and Numerical Aspects in Modeling Biological Systems

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**Title:** Study on the data clustering impact on the diffusion coefficient estimation for ecological problems.

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**Abstract:** The main goal attained by this work is to evaluate the impact of the data clustering treatment on the diffusion coefficient estimation for ecological problems. In a previous work, a method for the estimation of the diffusion coefficient was created and validated, but only for cases with a single source of events. The validation of this method relies on data simulation techniques to generate diffusive data. The present work approaches the case where there are two distinct sources of events. The data clustering algorithm applied to the simulated data was the K-means, and two distinct computational experiments were developed and meticulously analyzed. In the end, a practical application is approached by the case study of H5N1 in Nigeria.