

## **Integration of Climatic Factors in the Meta-Population Modelling of the Dynamic of Malaria Transmission, Case of Douala and Yaoundé, Two Cities of Cameroon**

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**Abstract :** The goal of our study is to analyse the impact of climatic factors in malaria transmission taking into account migration between Douala and Yaoundé, two cities of Cameroon country. We show how variations of climatic factors such as temperature and relative humidity affect the malaria spread. We propose a meta-population model of the dynamic transmission of malaria that evolves in space and time and that takes into account temperature and relative humidity and the migration between Douala and Yaoundé. We also integrate the variation of environmental factors as events also called mathematical impulsion that can disrupt the model evolution at any time. Our modelling has been done using the Discrete EVents System Specification (DEVS) formalism. Our implementation has been done on Virtual Laboratory Environment (VLE) that uses DEVS formalism and abstract simulators for coupling models by integrating the concept of DEVS.

**Keywords :** compartmental models, DEVS, discrete events, meta-population model, VLE

**Conference Title :** ICAMMS 2016 : International Conference on Applied Mathematics, Modelling and Simulation

**Conference Location :** Paris, France

**Conference Dates :** July 25-26, 2016