

# Geospatial analysis of *Ae. aegypti* foci in southern Brazil

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## Abstract

Arboviruses have become a major public health problem in recent decades. *Ae. aegypti* has been the vector responsible for the greatest spread of these diseases. This study aims to identify outbreaks of *Ae. aegypti*, through the capture of egg traps installed in the City of Passo Fundo, in southern Brazil, to understand the geospatial dimensions aimed at mapping to control the proliferation of these mosquitoes.

Methodologically, 20 points were selected for trap placement using an Irregular Triangular Network. Then, ovitrap traps were distributed at the sampled points, during all seasons in 2016 and 2017. From the collected eggs, a colony of wild *Ae. aegypti* mosquitos was established and stored for future testing. Using geotechnologies, the mapping of each trap was carried out with an accuracy of up to 50 cm. The greatest number of outbreaks occurred in the autumn and summer seasons, with an average temperature of 18 °C and 350 mm of rain, and 22 °C and 300 mm of rain, respectively. Spring and winter, when temperatures are lower, 16 °C and 17 °C, respectively, saw fewer outbreaks. The places that stood out in the study were the two most densely populated and least vegetated areas of the city, Bairro Vila Luiza and the Centro neighborhood. This demonstrates that vegetation suppression and high urban density rates contribute to the proliferation of *Ae. aegypti* on a global scale.

## Keywords

public health, practical study, environmental sciences, population risks, contamination