

# GLOBE OBSERVER PROJECT.

LANDSCAPE AND MICROCLIMATE ANALYSIS TO  
CORRELATE DENGUE CASES ON CEFET CAMPIS  
MG THROUGH THE GLOBE OBSERVER APPLICATION -  
MOSQUITO HABITATS PROTOCOL

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# 1 - Introduction :

Since the project began in 2023, it has monitored how climatic variability in Belo Horizonte affects the proliferation of *Aedes aegypti*.

In 2023, climatic conditions were close to normal, with stable temperatures and regular rainfall, serving as a baseline scenario.

In 2024, the city experienced a prolonged drought, marked by reduced rainfall and low humidity.

This drought significantly altered the environmental balance and influenced the vector's breeding conditions.

In 2025, there was a slight recovery in rainfall, indicating a gradual return to more favorable climatic conditions.

However, the impacts of the previous drought still persist, maintaining risks related to the proliferation of *Aedes aegypti*.

# 2 - Objectives :

1. Analyze the influence of climatic variables (temperature, humidity and precipitation) made available by INMET on the proliferation of the *Aedes aegypti* mosquito on campuses I and II of CEFET-MG.
2. Map and record possible breeding sites for the *Aedes aegypti* mosquito using the GLOBE Observer application – Mosquito Habitats protocol, integrating scientific data and local observations.
3. Produce informative material based on the results obtained to contribute to actions to prevent and combat *Aedes aegypti* in the school community.



source :: Google imagens



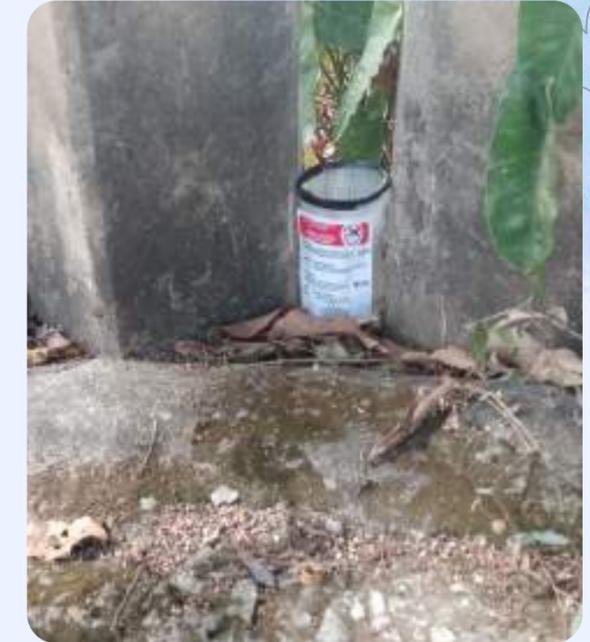
REVISTA GALILEU ED 385 ABRIL -2024

### 3 - Methods and Planning :

1. AS IN PREVIOUS YEARS, IT WAS POSSIBLE TO ESTABLISH A SOLID DATA BASE, RANGING FROM SUCCESSES TO ERRORS, WITHIN THE PROJECT DEVELOPED. THIS CONTRIBUTED TO A BETTER ORGANIZATION OF THE STEPS, ALLOWING THE PROCEDURES TO BE CARRIED OUT MORE ASSERTIVELY THAN IN OTHER YEARS, SUCH AS LOCATION, LABEL, WAY OF COLLECTING DATA, AND ALL THE CONTEXT THAT BROUGHT MORE EFFICIENCY..
2. THE SELECTION OF COLLECTION SITES WAS BASED ON ENVIRONMENTAL CRITERIA FAVORABLE TO THE PROLIFERATION OF THE VECTOR, SUCH AS THE PRESENCE OF SHADED AREAS, HUMIDITY, PROXIMITY TO STAGNANT WATER AND PLACES OF COMMON CIRCULATION AND PUBLIC ACCESS. AT THE SAME TIME, WE SOUGHT TO POSITION THE CAPTURERS DISCREETLY, MAKING THEM BARELY VISIBLE, IN ORDER TO AVOID DEPREDATION OR HUMAN INTERFERENCE.
3. COLLECTIONS ARE CARRIED OUT EVERY FORTNIGHT, CONSIDERING THE DIRECT RELATIONSHIP WITH THE COMPLETE LIFE CYCLE OF Aedes Aegypti. THE DATA OBTAINED EVERY 15 DAYS IS CROSSED WITH METEOROLOGICAL INFORMATION FROM INMET (NATIONAL INSTITUTE OF METEOROLOGY), INCLUDING VARIABLES SUCH AS HUMIDITY, WIND, TEMPERATURE AND VEGETATION COVER. THIS INTEGRATION PROMOTES AN INTERDISCIPLINARY APPROACH, ARTICULATING KNOWLEDGE FROM THE AREAS OF ENTOMOLOGY, CLIMATOLOGY AND THE ENVIRONMENT FOR A MORE COMPREHENSIVE ANALYSIS OF VECTOR DYNAMICS.

## 4- Materials:

- MOBILE DEVICES WITH INTERNET ACCESS;
- PET BOTTLES;
- INSULATING TAPE;
- ADHESIVE LABELS FOR PROJECT IDENTIFICATION;
- PLASTIC PLATE;
- PERSONAL PROTECTIVE EQUIPMENT (GLOVES, INSECT REPELLENT);
- GPS FOR GEOLOCATION OF COLLECTION POINTS;
- MICROTULLE;
- SCISSORS;
- WATER;
- SANDPAPER; BETTA FISH FOOD



**PROJETO GLOBE OBSERVER  
PEGA-MOSQUITO:**

- NÃO MEXA, NÃO TOQUE
- PROJETO EM ANDAMENTO/  
CUIDADO EXTREMO!



**O PROJETO:**

- VISA ANALISAR O TIPO E QUANTIDADE DE MOSQUITOS PRESENTE NO CEFET E ASSOCIAR COM ASPECTOS AMBIENTAIS NO ENTORNO



**PEGA MOSQUITOS:**

- NÃO DANIFIQUE, NÃO INTERFIRA, OBJETO DE PESQUISA E ESTUDO



**NASA GLOBE:**

- É UM PROGRAMA INTERNACIONAL DE CIÊNCIA E EDUCAÇÃO DESENVOLVIDO NASA E EM PARCERIA COM A AEB



**ORIENTADORES:**

- CAROLINA DIAS DE OLIVEIRA
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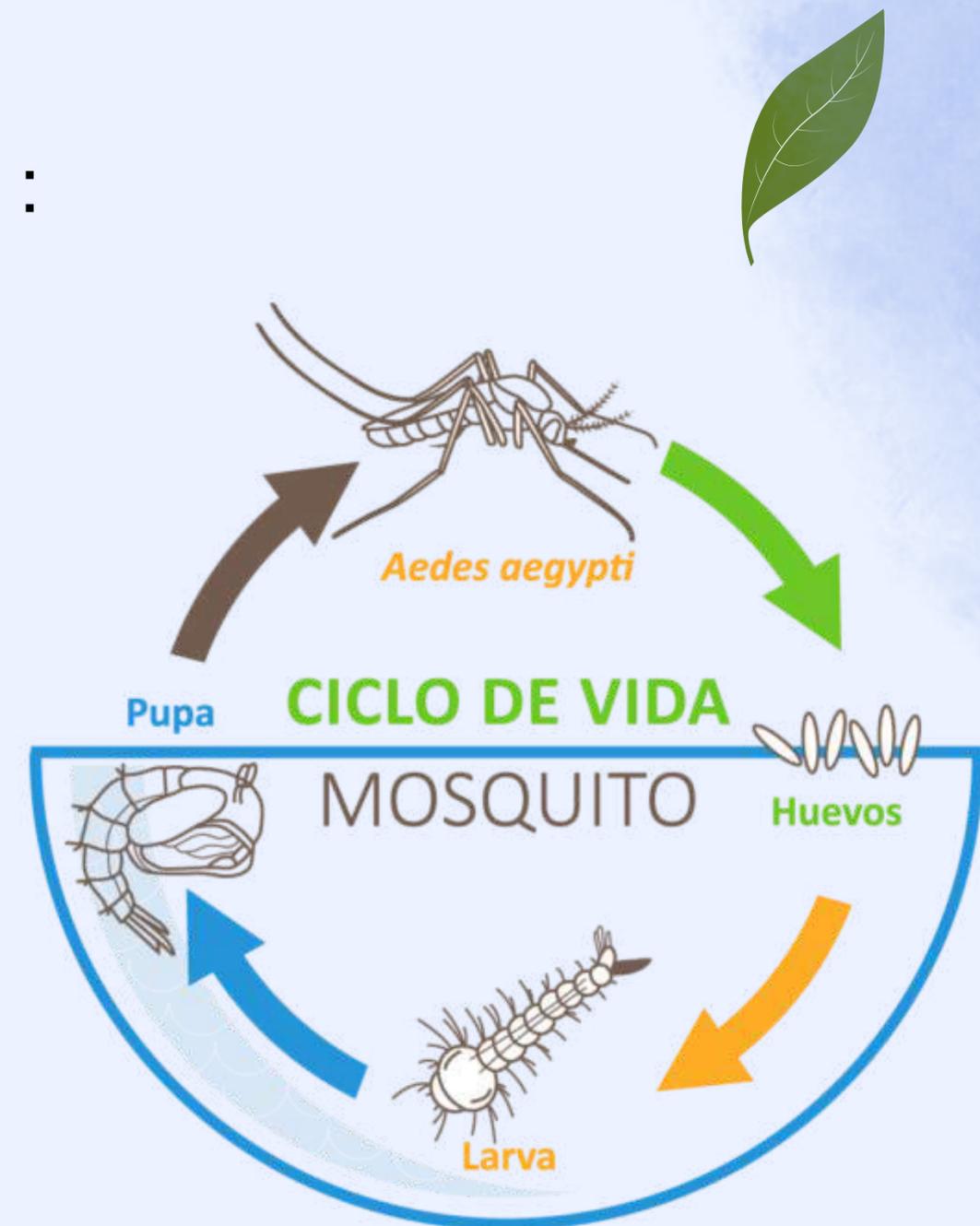


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## 5 - IMPLEMENTATION AND DISCUSSION :

- DATA COLLECTION HAS A QUALITATIVE AND QUANTITATIVE NATURE, ALLOWING THE PRESENCE OF *Aedes aegypti* TO BE IDENTIFIED AND THE NUMBER OF LARVAE IN THE 16 MONITORED TRAPS TO BE ANALYZED.
- MONITORING MAKES IT POSSIBLE TO UNDERSTAND LARVAL DENSITY AND HOW THE MOSQUITO ADAPTS TO THE SPECIFIC CONDITIONS OF EACH AREA OF THE CAMPUS FOR REPRODUCTION.
- IN THE FOLLOWING THREE SLIDES, THE GEOGRAPHIC DIFFERENTIATION OF COLLECTION POINTS WILL BE PRESENTED, COMPARING LOCATIONS FROM PREVIOUS YEARS WITH THOSE FROM THE CURRENT YEAR, TO EVALUATE CHANGES IN THE INFESTATION PATTERN AND THE EFFECTIVENESS OF THE CRITERIA ADOPTED.
- IN THE MATERIAL SLIDES, THE NEW LABELING RELATES FIELD DATA TO INMET METEOROLOGICAL VARIABLES, INTEGRATING QUALITATIVE AND QUANTITATIVE ANALYZES AND THE DIFFERENTIATION OF SUBSPECIES, EXPANDING THE UNDERSTANDING OF VECTOR DYNAMICS IN EVERYDAY LIFE.



Source:

<https://www.ecologiaesaude.com/ciclo-de-vida-do-mosquito.v>

# 6- MAP OF THE CAPTURERS IN THE YEAR 2024

CAMPUS 1 - MAPPING OF CAPTURE POINTS - 2024



CAMPUS 2 - MAPPING OF CAPTURE POINTS - 2024



## Location of the capturers - Campus 1 - 2025



Source: Authors' collection, 2025

## Location of the capturers - Campus 2 - 2025



Source: Authors' collection, 2025

# 9- CONCLUSION :

- Comparing the current results with the previous period revealed obstacles that affected the project's progress, such as more than 150 days of drought in Belo Horizonte, which reduced natural breeding grounds, and the depredation of traps, generating delays and the need to replace equipment.
- Despite initial limitations, the research outlook is positive with the return of rainfall and longer monitoring periods, factors that favor the activity of *Aedes aegypti*. The low presence of larvae may be related to the climate transition from El Niño (2023) to La Niña (2024).
- In 2025, the research progressed with methodological adjustments and the resumption of data collection, but still faces challenges such as manual production and standardization of the collectors. Improvements were implemented in monitoring and maintenance of collection points was reinforced, aiming for greater data reliability and reduction of operational losses.



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