

Identification of mosquito breeding grounds



Orthomosaic of José Domingo Espinar, San Miguelito district



Area divided into zones with possible mosquito breeding points (yellow dots)

| OVERVIEW | |
|------------------------|---|
| Flying Labs | Panama Flying Labs |
| Geographic area | Jose Domingo Espinar, San Miguelito District, Panama. |
| Date | December 2018 - January 2019 |
| Sector program | HealthRobotics |

| SCOPE | |
|-------------------------------|---|
| Stakeholders (clients) | Ministry of Health (MINSA) |
| Challenge | Currently in Panama City, there is no adequate care or control of mosquito breeding sites, which implies an increase in diseases such as dengue. Keeping track of places where these mosquito breeding sites get developed is complicated and in some cases poses a risk for those responsible for carrying out the work. These people are often required to access building roofs or other hard to reach places. |
| Scope | This initiative will allow capturing the first sample data to locate possible mosquito breeding sites, by capturing drone images, thus reducing the time needed to identify the breeding sites. This process will allow a faster elimination of those sites. It would also reduce the risk of disease from these mosquitoes and the risk related to carrying out the tasks by those involved in identifying breeding sites. |
| Outcome | Phase 1: Identification of areas where potential mosquito breeding sites could exist. Phase 2: Distribution of flyers to inform the community about the planned drone flights for that day. |

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| | <p>Phase 3: Acquisition of images using a drone.</p> <p>Phase 4: Processing and analysis of the data captured.</p> <p>The use of a drone to perform this task was very beneficial since it allowed for the identification of mosquito breeding sites in less time compared to how it was done before, providing information faster, more accurately and from an aerial point of view. Through the analysis with QGIS, it was possible to get a map of the possible mosquito breeding sites.</p> |
| Next steps | <p>Further promotion of this kind identification and monitoring of mosquito breeding sites throughout the territory of Panama. Developing a training programme to teach management personnel on how to use drones to capture images and process the data using different software. As a result, increase the safety of the people in charge of identifying the mosquito breeding sites by eliminating the need to access or climb risky areas, like building roofs.</p> |

DATA ACQUISITION

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| Size of area | 29.93 ha (0.299 km ²) |
| Drone | DJI Phantom 4 Pro V2 |
| Sensor(s) | RGB camera |
| Flight plan software | Pix4Dcapture |
| Flight height | 121 m above ground level |
| GSD (Accuracy) | 2.69cm/pix |
| Number of images acquired | 489 |
| Number of flights | 3 |
| Time invested in data acquisition | 45 min 57 sec |
| Georeferencing | Onboard GPS |

DATA PROCESSING & ANALYSIS

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|---|---|
| Processing software | Pix4Dmapper |
| Processing time | 3hrs 4min |
| Data products | Orthomosaic, DTM |
| Analysis tools | QGIS |
| Analysis outputs | Orthomosaic and map of identified areas of possible mosquito breeding |
| Final outputs shared with stakeholders | Orthomosaic, DTMs and map of identified areas of possible mosquito breeding |
| Data sharing | Hard drive |