Identification of Aedes Aegypti breeding sites using unmanned aerial vehicle mapping: a pilot study

Data collection:

- Field team trained to collect & process UAV data

- Maps collected for 6 communities where our study actively monitors for dengue virus

Possible benefits of UAV mapping:

- Inexpensive

- Can be repeated over time to capture longitudinal and spatial change

- Many potential applications
  - In this case, characterize Aedes aegypti breeding sites

- A rural community on the Ecuadorian coast

- Drone image overlaid on Open Street Maps

Higher resolution:

Kinds of features we would like to be able to classify:

Concrete

Fields

Trees

Rooftops

Possible vector breeding sites:

- Trash, plastics

- Water storage containers

- Puddles, standing water

Aims:

- 1) Develop pipeline to rapidly process images & identify key features

And in the future....

- 2) Link with entomological data to confirm association between key features and presence of Aedes Aegypti (breeding sites)

- 3) Conduct repeated flights to understand how these breeding sites evolve over time

Other possible applications

- Better understand hydrological dynamics in a highly flood-prone region

- Monitor deforestation

- Allow communities to monitor territory to identify illegal mining activity