Monitoring Forest Change in Aruba with drone data

Identifying locations of change and causes

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Project description

The United Nations (UN) have identified 17 Sustainable Development Goals (SDG) to address complex challenges related to access to resources, environmental preservation, economic development and more, all at a global scale. Each country is responsible for monitoring its own progress towards these goals. Small islands States face many competing challenges to achieving these goals due to scale, small geographic area, high environmental vulnerability, and limited economic power. Only 2,3% of the total area of Aruba are forests as defined by the United Nations SDG indicator 15,1,1 and these 2,3% are mangroves. Aruba's most common land type are tropical dry forests, however these are not included in the UN definition of forests. Satellite imagery is useful for monitoring forest extent and environmental changes to forests. However, the use of satellite imagery has drawbacks, including low spatial and temporal resolution of the imagery. Drones can help overcome these barriers by capturing imagery at spatial and temporal scales relevant to the local forest monitoring goals.

The aims of this research are twofold. First, to identify a repeatable open-source software workflow to monitor mangroves and tropical dry forests with the use of drone data over time. Second, test the feasibility of monitoring an invasive species in the tropical dry forest. Currently, we have three years of data for two different field sites, one mangrove and one tropical dry forest. We need a Bright Minds Researcher to help us develop and implement a method for monitoring change over time in these two field sites.

Job requirements

This student will be responsible for monitoring changes in forest extent and forest health over time in two field sites. The student may use remote sensing software and/or QGIS.

Secondly, the student will explore different ways to differentiate an invasive species to other forest cover in the tropical dry forest area.

Experience with Geographic Information Systems (GIS), remote sensing experience LiDAR data is a plus (willingness to learn is required), Interest in forest preservation and small islands is required.
Ideal candidate will have experience with QGIS and change detection process.