

2017 Pacific Environment Forum

Mapping the environment. Skyeye's Tools for the Environment



SKYEYE

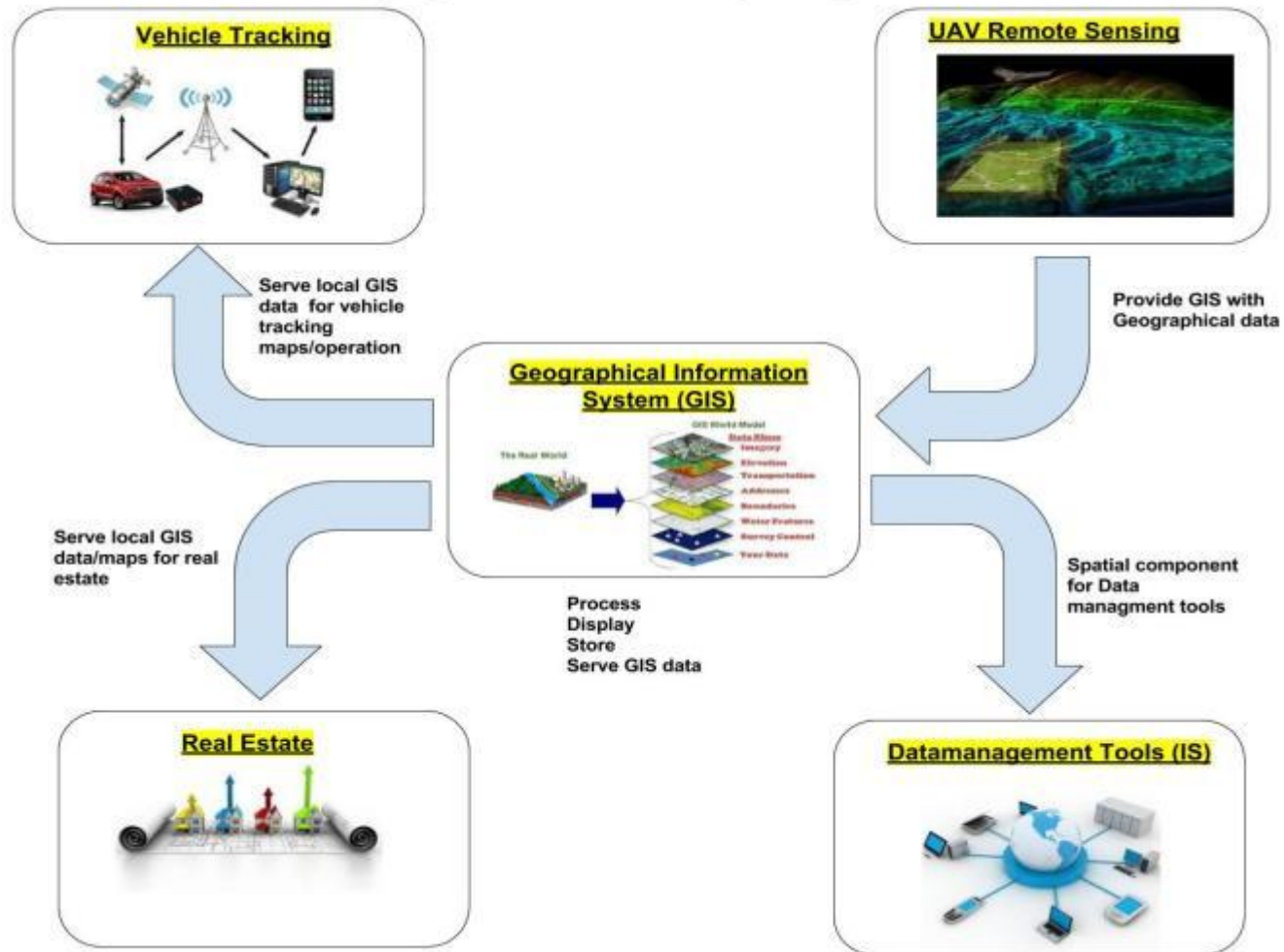
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About Skyeye

- **Local Geospatial Company Based in the Pacific HQ in Samoa**
- **Family operated company with local partners in the region**
- **Operating in Solomons, Vanuatu, Samoa (American Samoa and Fiji in process)**
- **Employ 18 local staff across 3 Pacific countries**
- **In operation for 4 years**
- **Inspire the youth to participate in Geospatial and technology in general**
- **Local Partner for Public, Private, NGO and Civil Society sector in the Pacific for Geospatial solutions**

Skyeye Products Synergies



UAV Remote Sensing Data Products/Application

1. High Resolution UAV Drone Aerial Imagery

- ❖ Change Detection Over Time
- ❖ Land use and vegetation mapping using classification

2. 3d Point Cloud Data

- ❖ 3d Feature mapping and extraction using 3d classification
- ❖ Biomass Calculation
- ❖ Flood Inundation Maps
- ❖ Water Catchment Mapping

3. Near Infra Red Imagery

- ❖ Vegetation health via Normalized Difference Vegetation Index (NDVI)

Remote sensing hardware (UAV Fleet + Basestation)

Mid Range -----Long Range -----Short Range



GNSS BaseStation



High Res Drone Aerial Imagery

- As low 2cm GSD compare to 30cm for the best satellite
- Capture current and process and deliver within a day
- Orthorectified, Accuracy down to cm accuracy (with basestation)



Application 1 : Change Detection Over Time

Client : Solomon Islands Ministry of Lands, Housing and Survey

Area of Interest : Henderson Area (41 sqKm)

Purpose :

1. Identify Illegal settlements/Area encroachment
2. Risk identification for settlements with the changing river and
3. Property planning

Area of Interest



Figure 4. Henderson ISE extents. (source: MCHS and Google Maps 2015)

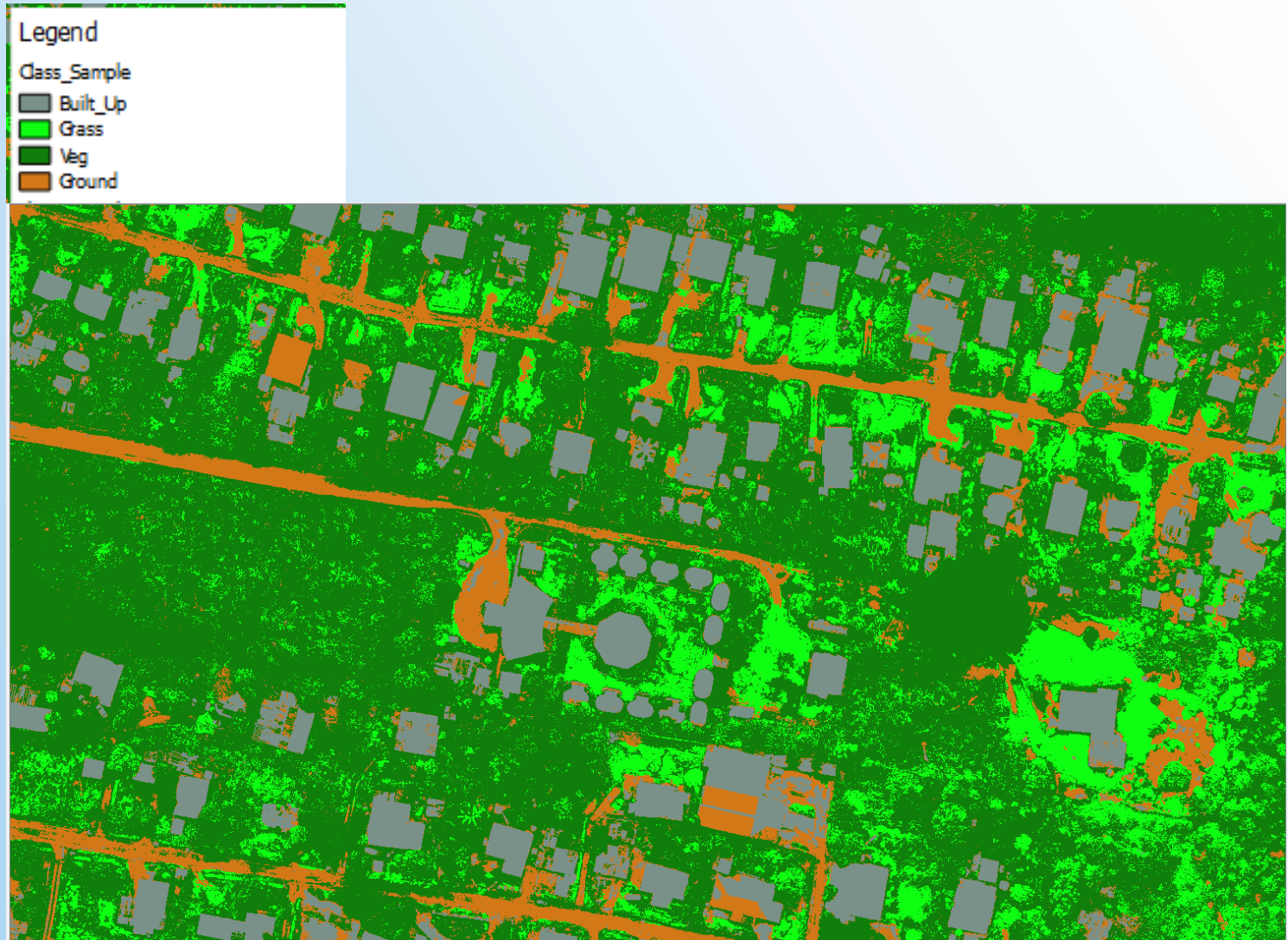
Change Detection 2003 vs 2017



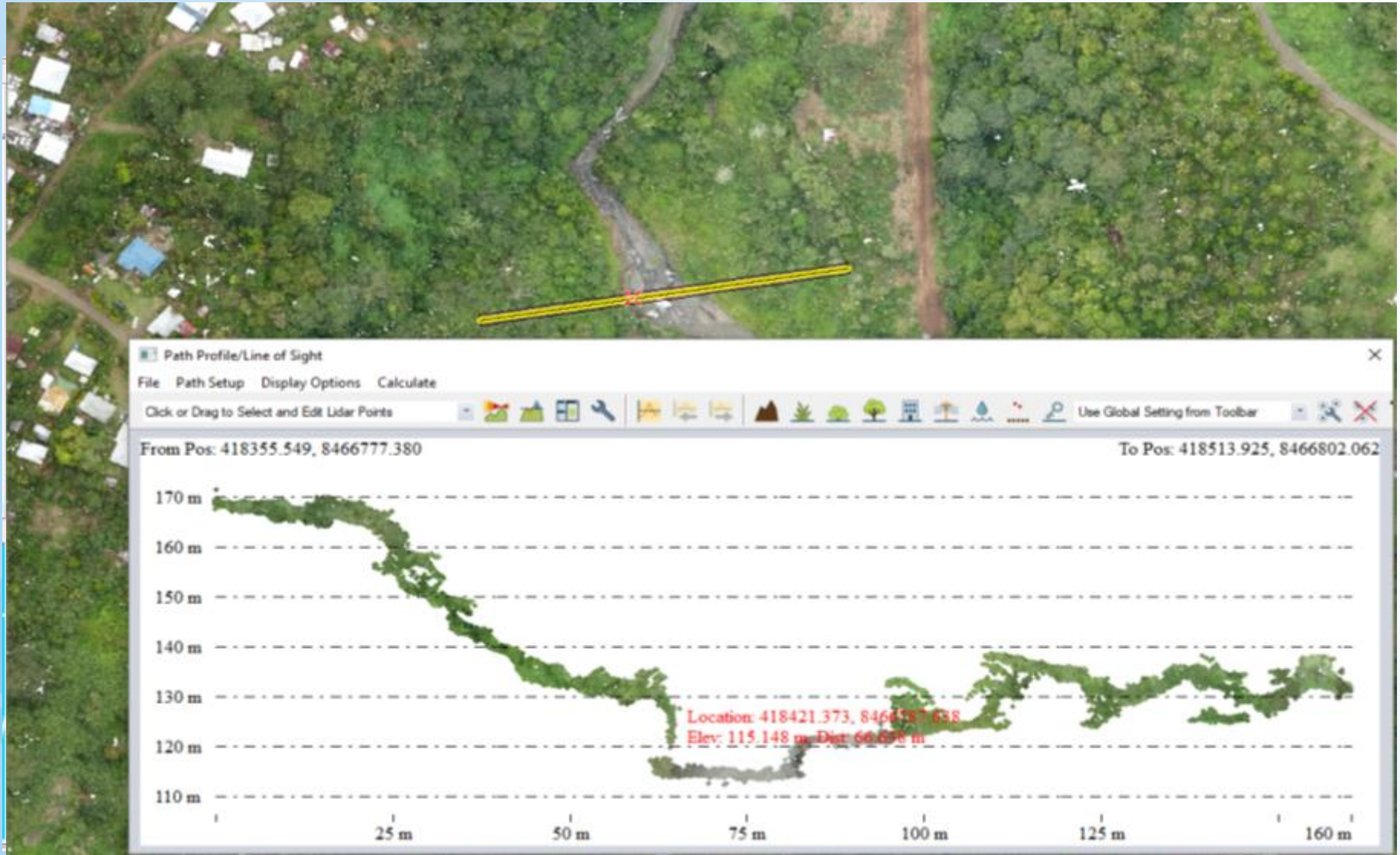
Change Detection 2003 vs 2017



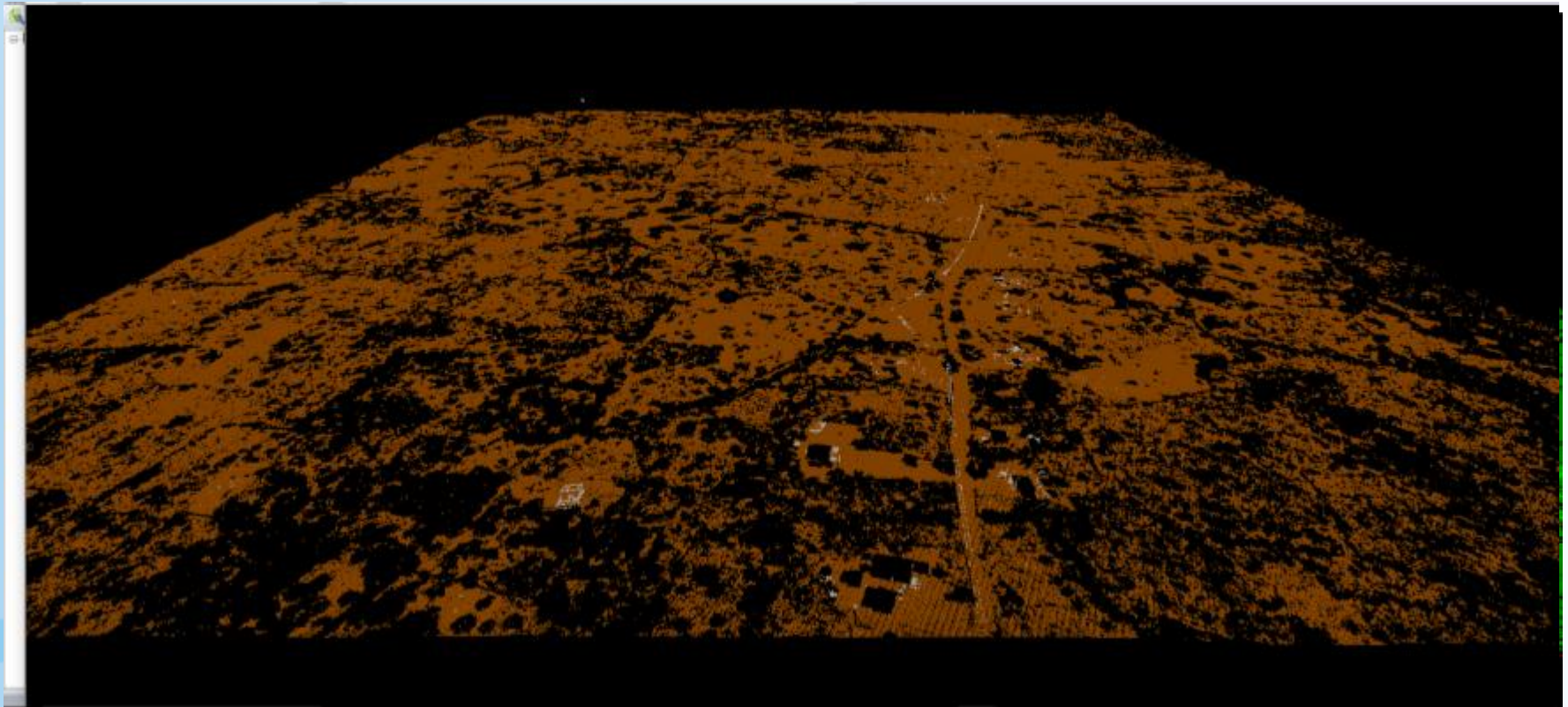
Application 2 : Land use and vegetation mapping using classification



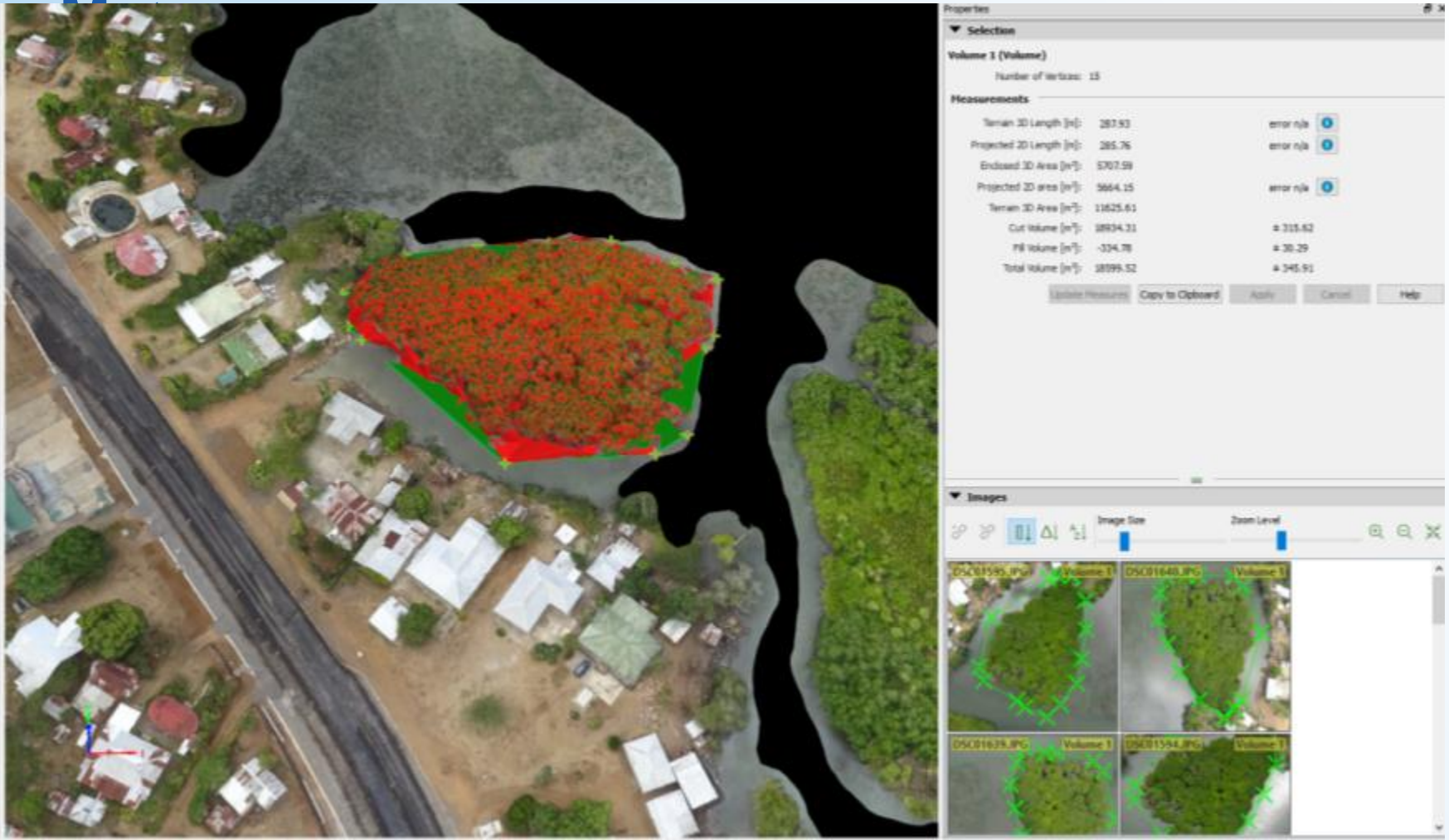
3D Point Cloud Data



Example 3d Feature mapping and extraction using 3d classification



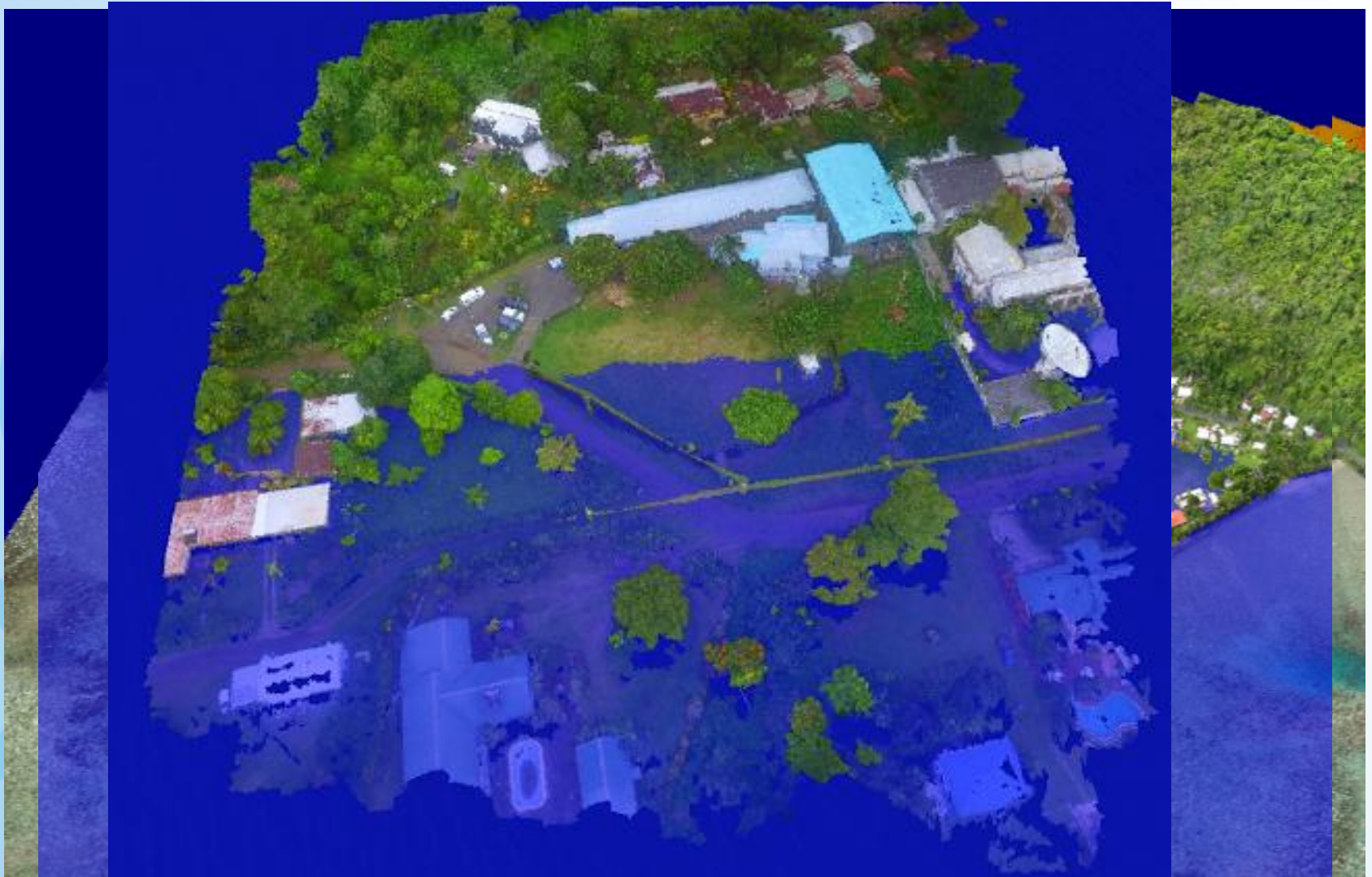
Application 4: Volume calculations of mangroves. Vaiusu bay 18,599.52 Cubic

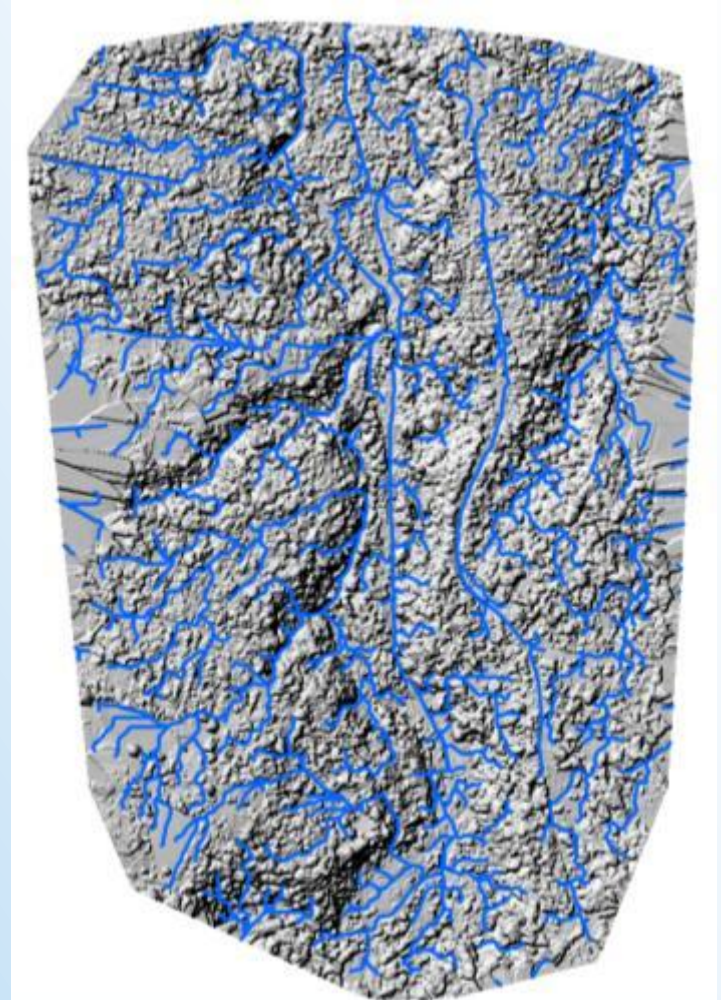
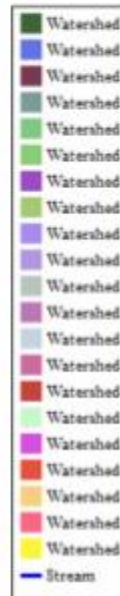


Biomass calculation (STEC Biomass Project)

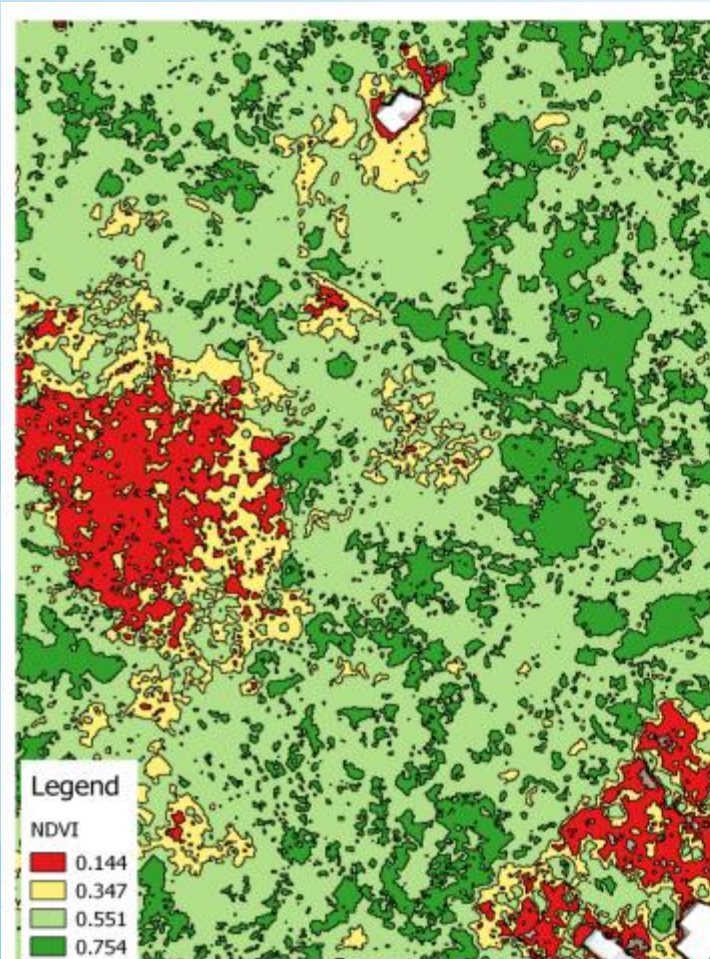


Application 5: Flood/Water Inundation Map





Application 7 : Generate Vegetation Health Maps. Normalized Difference Vegetation Index (NDVI)



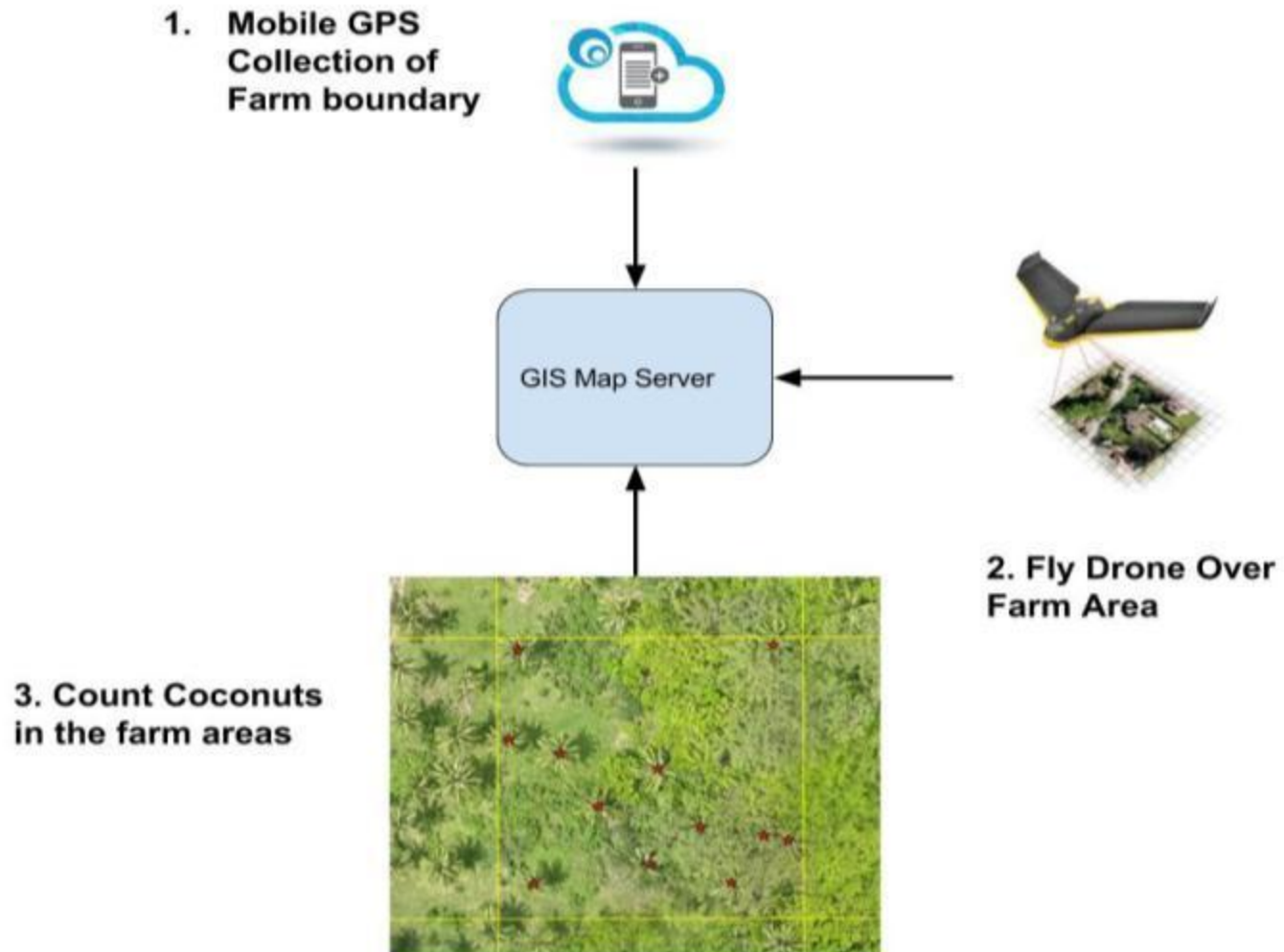
GIS Technology

- PostGIS Data (Spatial Database)
- Geserver (GIS Application Server)
- Openlayers (Web GIS Client)
- QGIS (Desktop GIS)
- Skyeye From (field data collection)
- WMS, WFS (Interoperability)

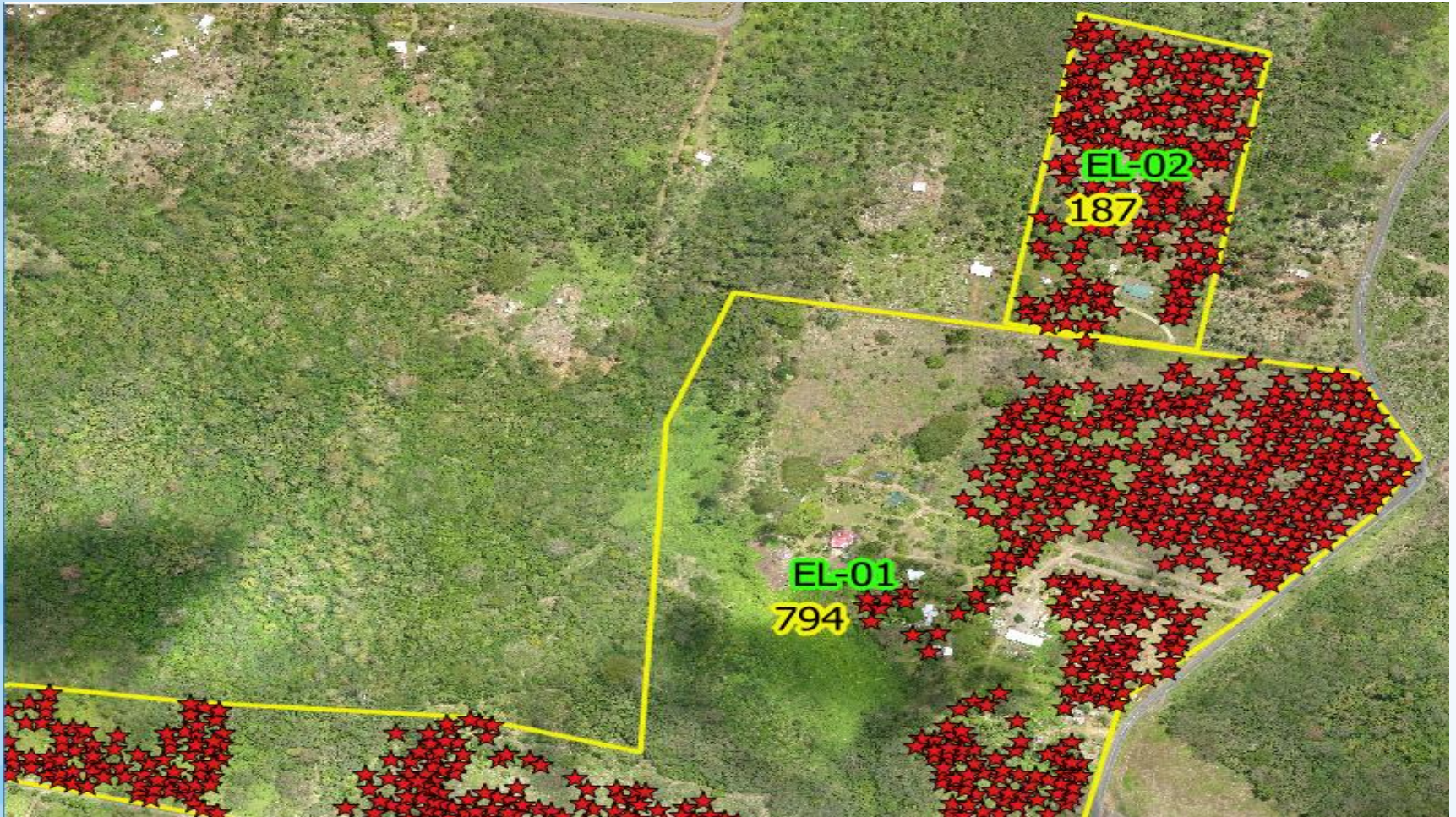
Application 8 : Farm Mapping and Coconut Counting using GIS/RS tools (Women In Business)

- ❖ Needed to map all the Organic farms
- ❖ Count all the coconuts in these organic farms
- ❖ Usual method site survey methods would time consuming and requires hundreds of thousands of man hours for fields work

Methodology



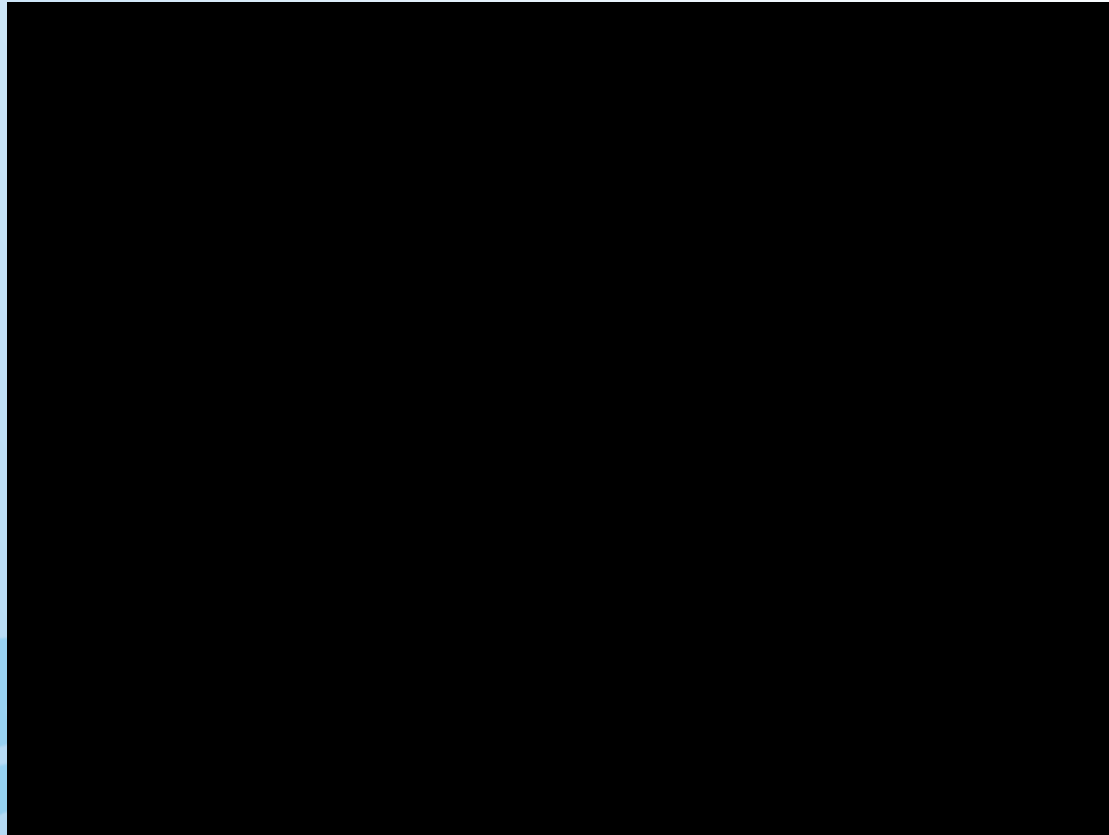
Sample Map



Final Coconut Inventory Map (430k Organic Coconut Trees)



Solomons (Simbo) Organic Certification



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