



openforis

# Collect Earth & Earth Map

Tools to enable easy Earth Observation access

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[openforis.org](http://openforis.org)

- Open Foris Initiative (since 2010)
  - **Data collection** : Collect, Calc, Collect Mobile, Collect Earth Online and Collect Earth
  - **Remote sensing & GIS** : SEPAL and Earth Map
- Free and Open Source Software
- Collect Earth developed from 2013, with over 20.000 downloads!



COLLECT EARTH





# Collect Earth

Augmented Visual Interpretation tool for land use/cover classification and change detection with access to high and very high resolution satellite imagery



# Augmented Visual Interpretation

- Data Collection tool integrated in Google Earth. Free access to Very High Resolution imagery.
- Multitemporal imagery thanks to Google Earth, Bing Maps and High Resolution Imagery from Google Earth Engine. [See video](#).

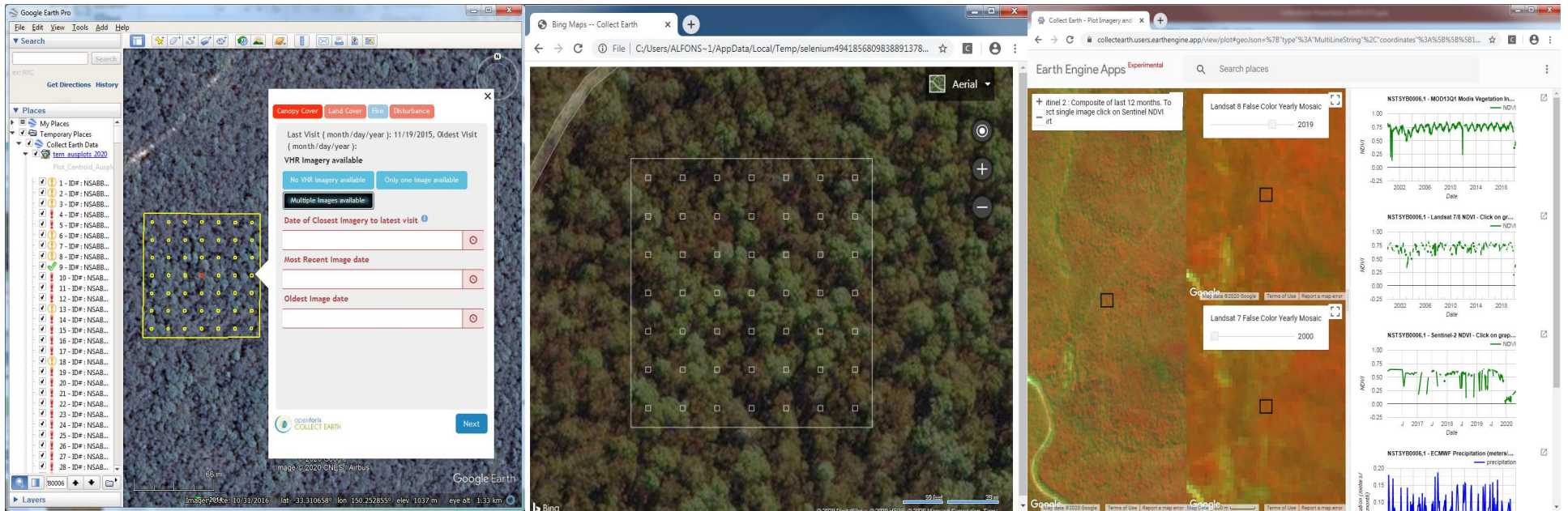
The screenshot displays the Google Earth Pro interface with a data collection tool overlaid on a satellite image of Santiago Island. The tool includes a 'Planes' sidebar with a list of 29 data points, a grid of yellow markers on the terrain, and a detailed data panel on the right. The data panel shows the latest vhr image available for 2016 and provides a breakdown of vegetation types and their cover percentages. A 'Tree Count' of 17 is displayed, and a 'Shrub Count' is highlighted in red. The interface also includes a 'Next' button and a 'Google Earth' logo.

Vegetation type	Vegetation cover
Tree	40-49%
Shrub	0%
Palm	0%
Bamboo	0%
Crop	0%

Tree Count: 17  
Shrub Count: **1**  
Nothing selected



# Geo-link with imagery sources



Extra-Imagery sources supported

Google Earth Engine (GEE App / Code Editor)

Bing Maps

Planet (Free NICFI Monthly basemaps / Purchased Daily Imagery)

Maxar SecureWatch (licensed)

# Google Earth Engine >20 Petabytes Data Catalog

## Imagery

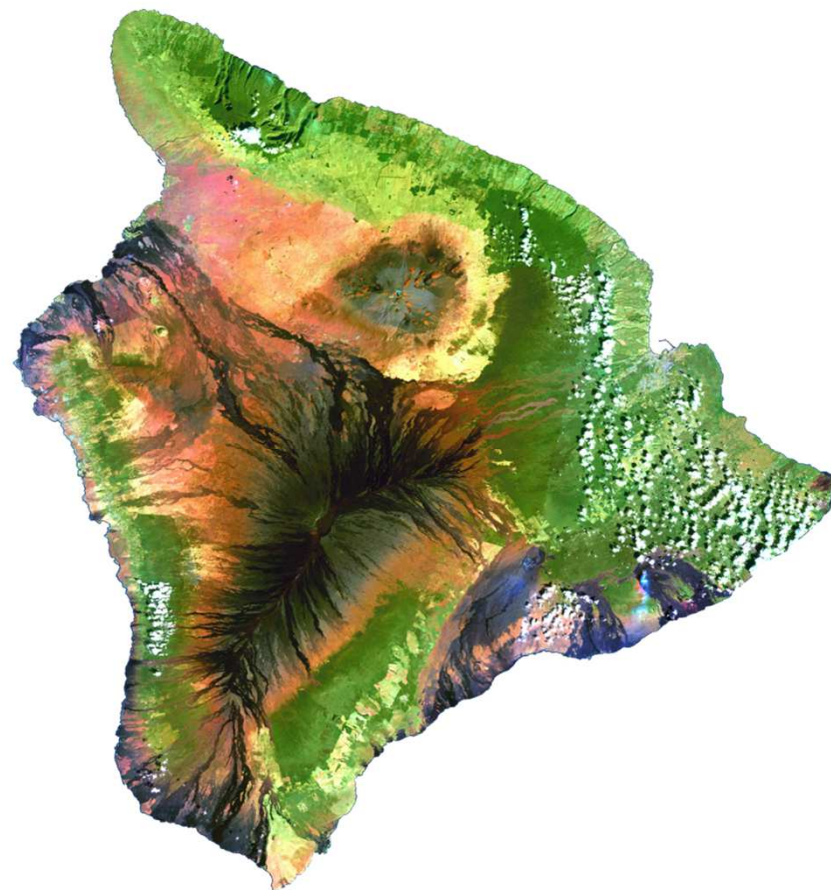
Landsat 4-8	30m
MODIS	250m Daily Global
Sentinel-2	20m
Sentinel-1	10m SAR
JAXA,	

## Geophysical

Digital Elevation  
Land Cover  
Surface Temperature

## Weather Forecasts

## Climate Models



COLLECT EARTH





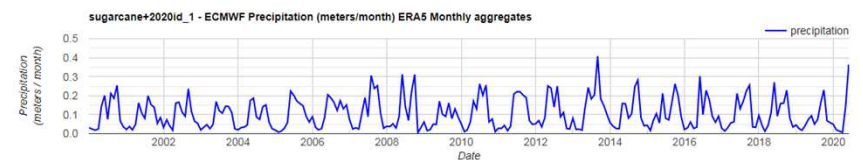
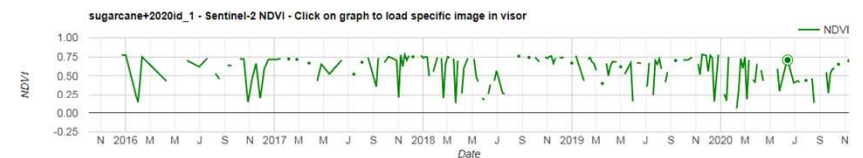
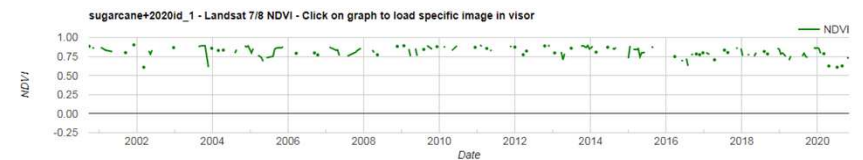
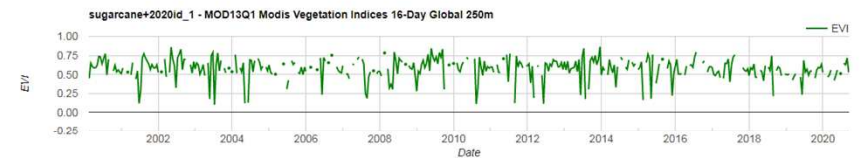
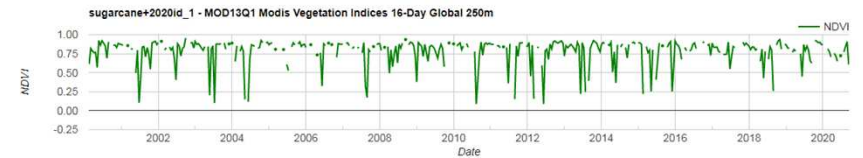
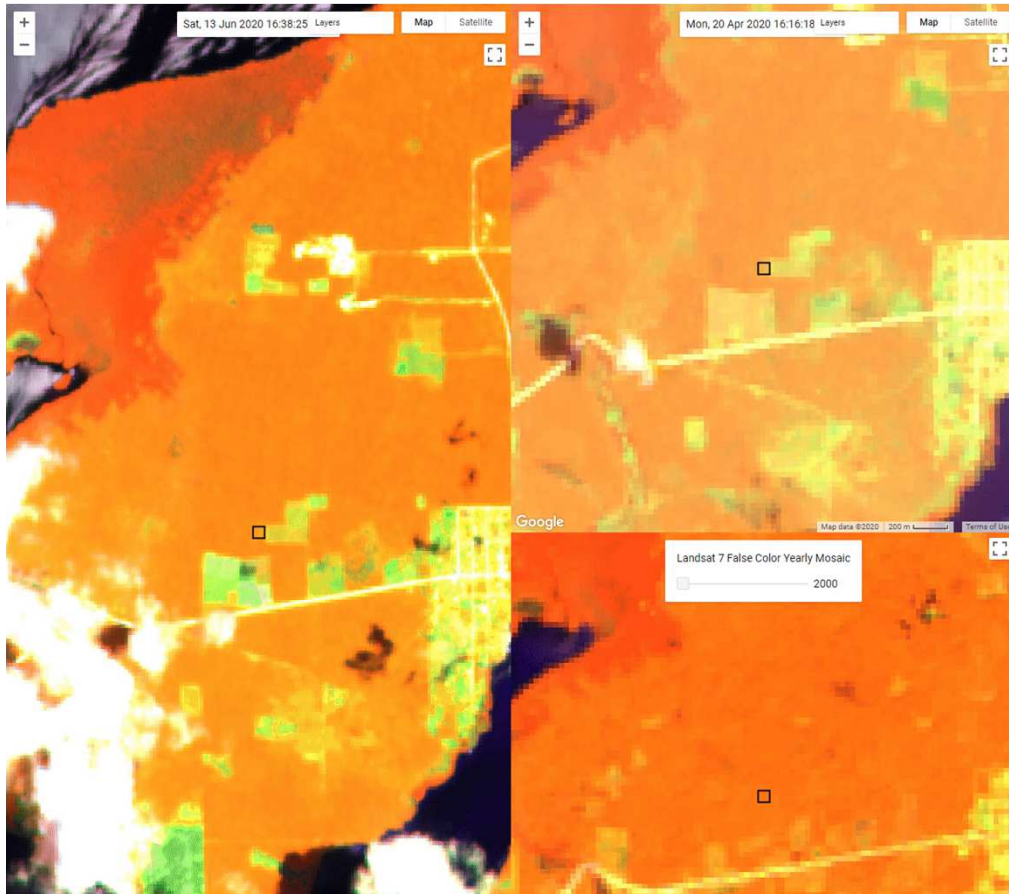
# Google Earth History



COLLECT EARTH



# GEE History

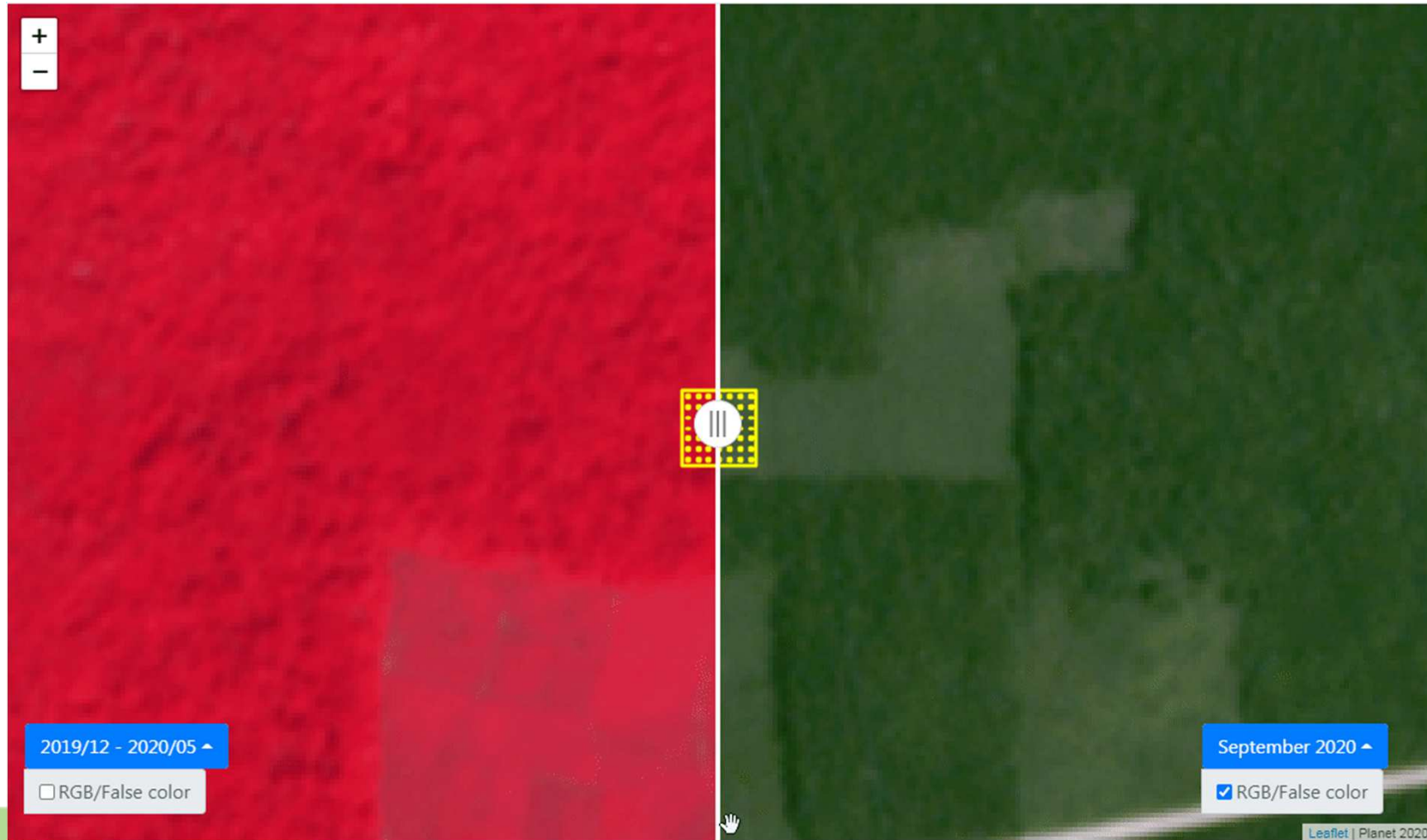


COLLECT EARTH





# NICFI Planet Imagery

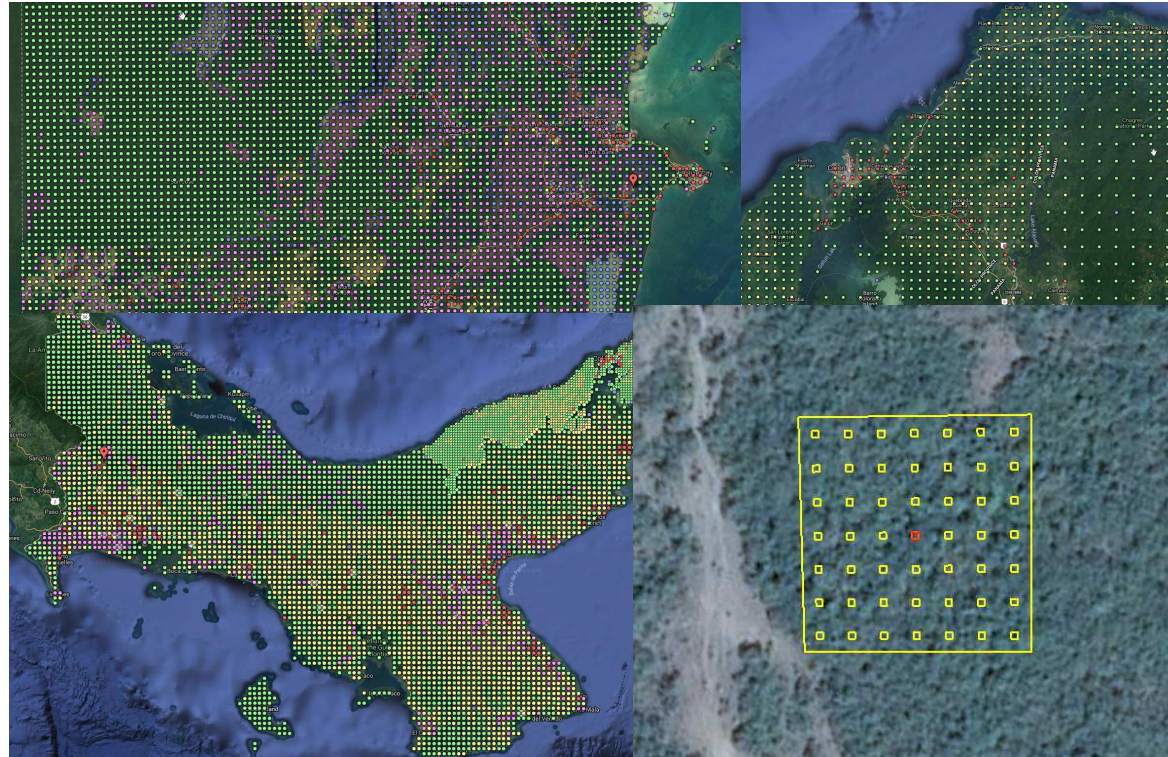


COLLECT EARTH

Change in 2020 – not visible in Google Earth images



# Sampling approach



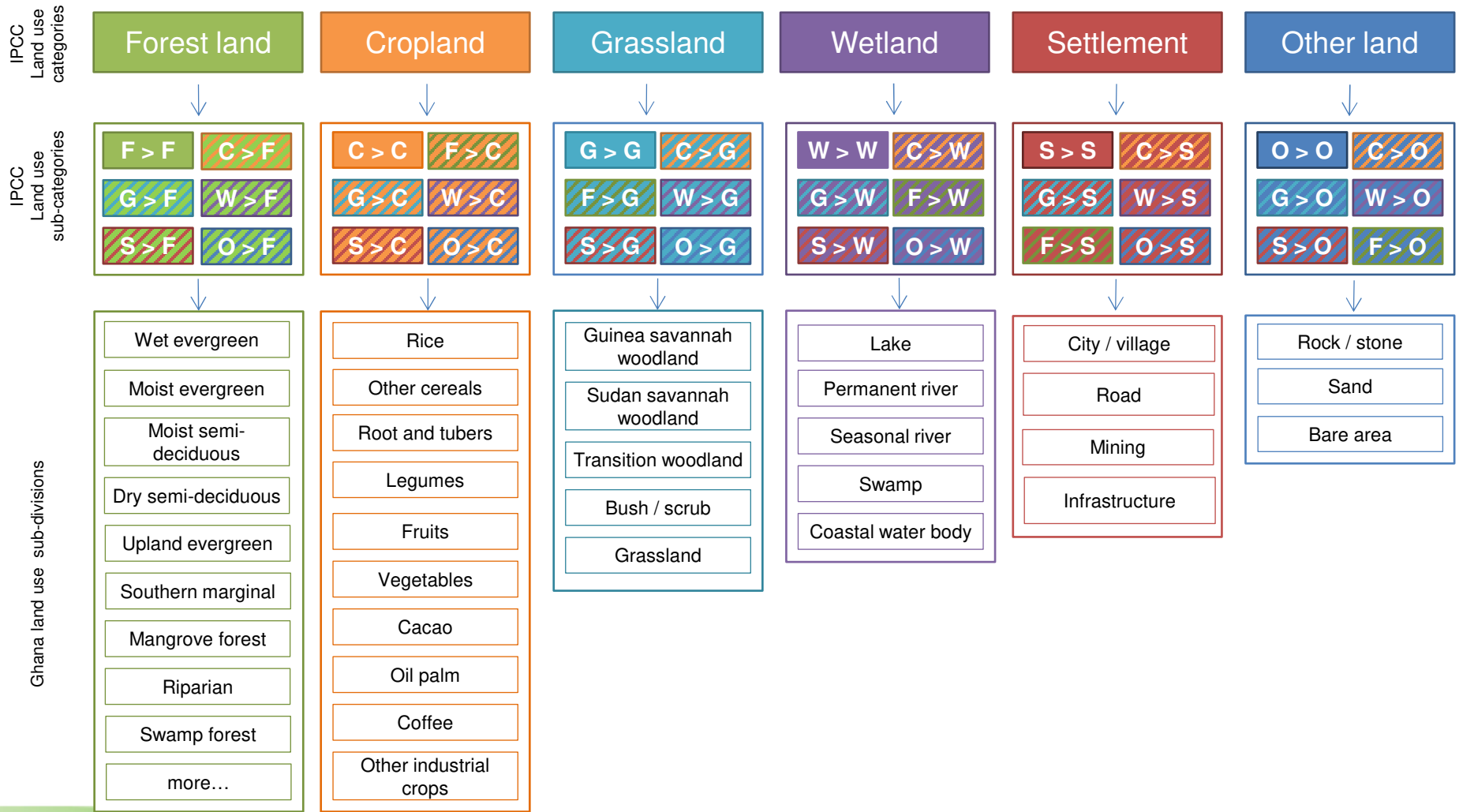
Systematic, Random or Stratified  
Sampling design is independent from the survey  
[GEE TOOL TO GENERATE GRIDS](#)



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# IPCC Land Representation



COLLECT EARTH

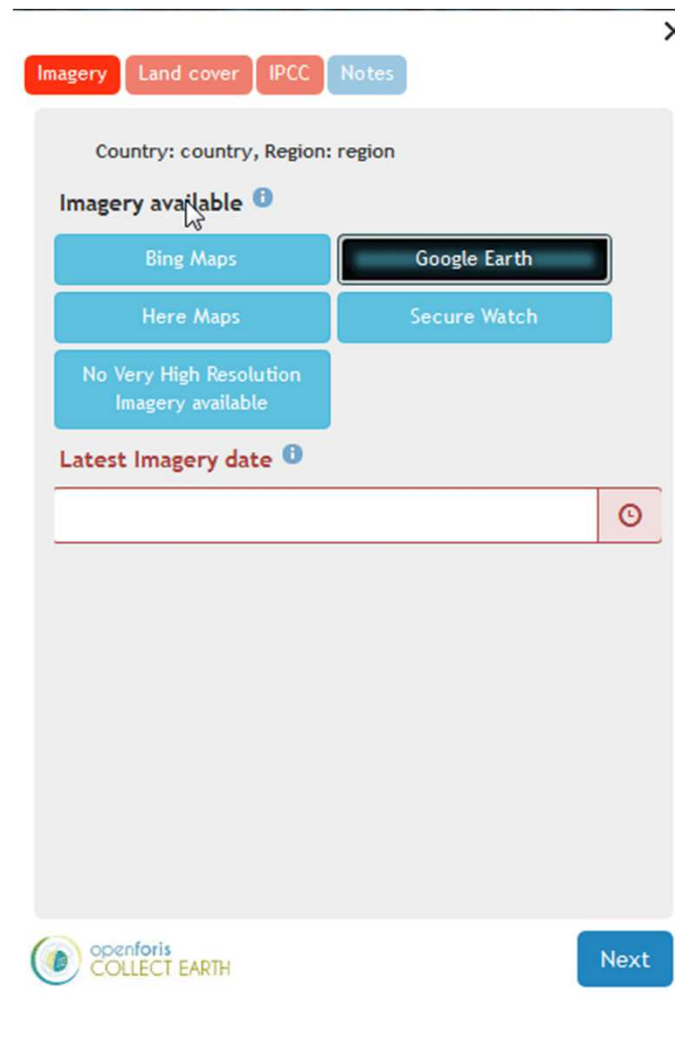




# Collect Earth use cases

Collect Earth facilitates the analysis of high and very high resolution satellite imagery for a wide variety of purposes, including :

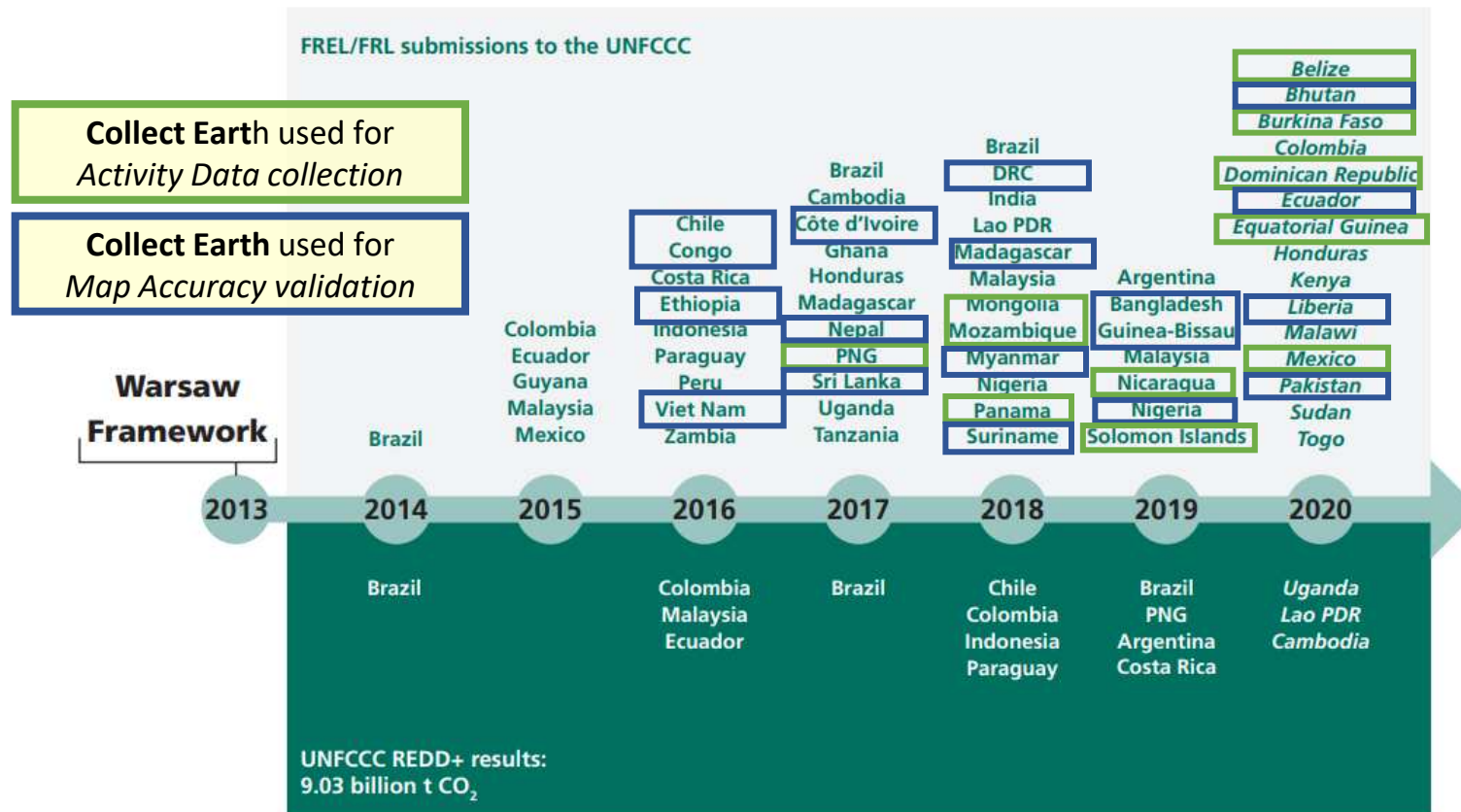
- Support **multi-phase National Forest Inventories**
- **Land Use, Land Use Change and Forestry (LULUCF)** assessments
- Monitoring **forest restoration** / baseline setting (GGW)
- **Accuracy assessment** of existing maps
- Monitoring **agricultural land and urban areas**



COLLECT EARTH

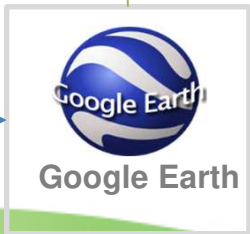
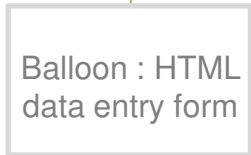
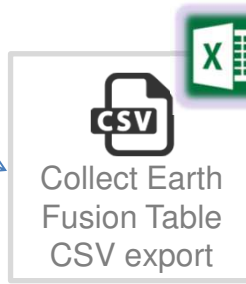
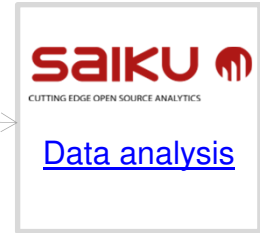


# FREL Submissions



COLLECT EARTH

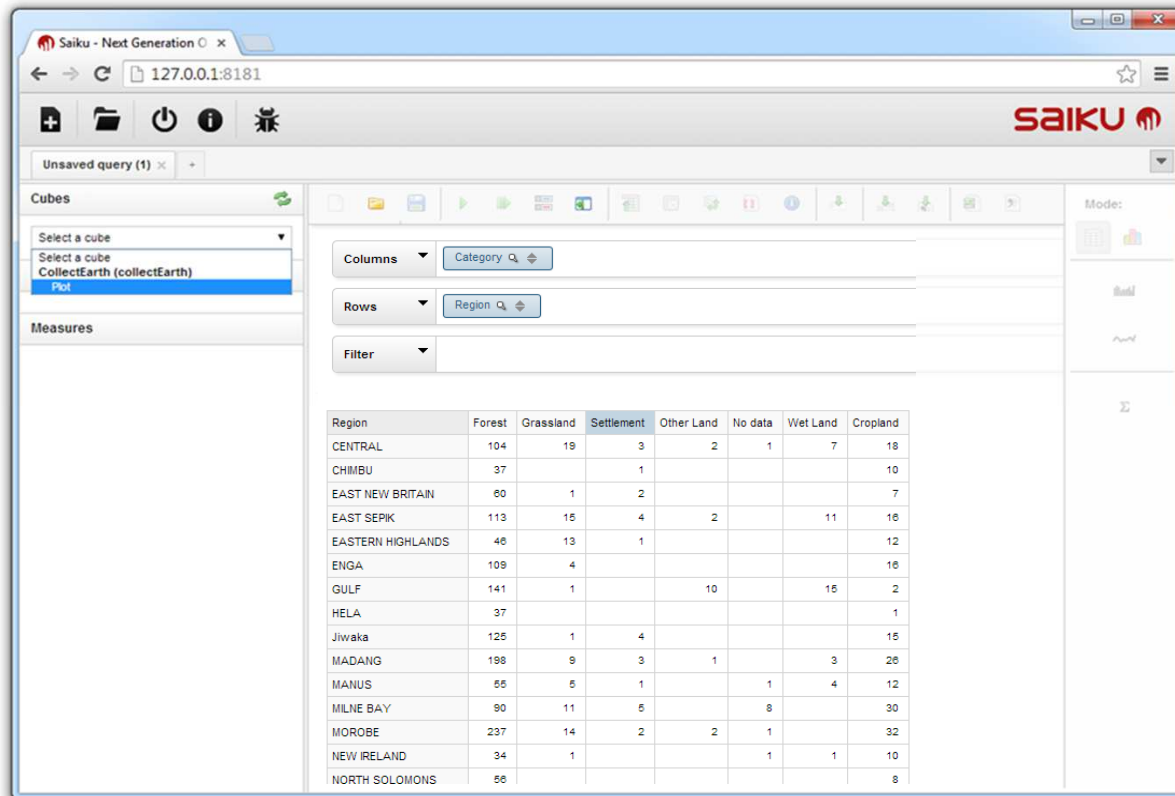




- *User friendly, java-based data collection tool*
- *Fully customizable data entry*
- *Limited computer skills necessary*
- *Individual or team based data collection*
- *Open-source software with code available on Github.com*



# Saiku

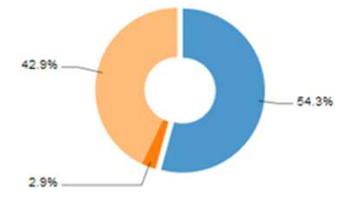


■ CENTRAL ■ CHIMBU ■ EAST NEW BRITAIN ■ EAST SEPIK

Settlement



Grassland



Forest



- Fast, intuitive and flexible data analysis
- Powerful tool for data quality control
- Data export to Excel, CSV and PDF
- Produce colorful and informative charts and graphs with a few clicks
- Export graphics to JPG, PNG or other formats





# Earth Map

The power of Google Earth Engine without coding. A user-friendly tool for complex land monitoring

# Google Earth Engine

The power of Google data storage and processing for free for research and climate analysis, but... not so easy to use!

The screenshot displays the Google Earth Engine web interface. The browser address bar shows <https://code.earthengine.google.com>. The interface is divided into several panels:











- Scripts Panel:** A sidebar on the left containing a search bar and a list of scripts. The script "Elevation And Temperature" is selected.
- Code Editor:** The central panel contains a JavaScript script for plotting elevation and seasonal temperatures along an SF-to-Reno transect. The script includes comments and code for data collection, filtering, and visualization.
- Inspector/Console Panel:** On the right, the console shows the title "Elevation and temperatures along SF-to-Reno transect" and a line graph. The graph plots "Average seasonal temperature (Celsius)" on the left y-axis (ranging from -20 to 40) and "Elevation (meters)" on the right y-axis (ranging from 0 to 3,000) against "Distance from SF (m)" on the x-axis (ranging from 0 to 300,000). Three data series are shown: Elevation (blue line), Winter 2014 (red line), and Summer 2014 (yellow line).
- Map Panel:** The bottom half of the interface shows a grayscale satellite map of a mountainous region. A red line is drawn across the map, representing the transect line used in the script.



# EarthMap.org



## Layers

 Climate	 Vegetation	 Fires
 Forestry	 Water	 Land Degradation
 Satellite images	 Geophysical	 Geosocial
 Land maps & Others		

## Statistics



Statistical data runs on Google Earth Engine



Statistical data is exportable



Yearly, Monthly and Seasonal data aggregations



# Imagery Compare tool

Earth Engine Apps Experimental

Spain - Jubrique Burn Severity (Sept)

SHARE LINK:  
About...

Sentinel-2 False 20 m (nir-swir1-red)

4 16 18 20 22 24 26 28 30 Sep 3 5 7

Aug 18, 2021 - Aug 20, 2021 Jump to date

Download Image

Burn Severity (NRB) Sentinel2

11 13 15 17 19 21 23 25 27 29 Oct 3

Sep 17, 2021 - Sep 19, 2021 Jump to date

Download Image

Measure Area  
Click to draw polygon

Google

Keyboard shortcuts | Map data ©2021 Imagery ©2021 | CNES / Airbus, Instituto de Cartografía 355a de Andalucía, Landsat / Copernicus, Maxar Technologies | Terms of Use | Report a map error

# Thank you!

Visit [help.earthmap.org](http://help.earthmap.org) for  
Info and Use Cases

Any questions?

[Alfonso.SanchezPausDiaz@fao.org](mailto:Alfonso.SanchezPausDiaz@fao.org)