



Plenary
9-11 May 2023

Updating Reference level in Kenya

Improving Measurement for Payments to Reduce Emissions and Strengthen Sinks (IMPRESS) project

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Outline

1. Introduction

2. 20km & 2km Grid

3. CEO Data

4. QAQC activities



Kenya's Forest Reference Level – 2019

National Forest Monitoring System

- Capacity Development Project for Sustainable Forest Management in the Republic of Kenya (CADEP-SFM)
- Reference Period 2002 – 2018
- National Scale | CO₂ only
- REDD+ Activities
 - Reducing emissions from deforestation
 - Reducing emissions from degradation
 - Sustainable management of forests
 - Enhancement of forest carbon stocks
- Emissions Factors
 - Pilot NFI (121 plots)
- Activity Data
 - Map subtraction approach (2002 – 2006 – 2010 – 2014 – 2018)
- UNFCCC Technical Assessment in 2020

Republic of Kenya



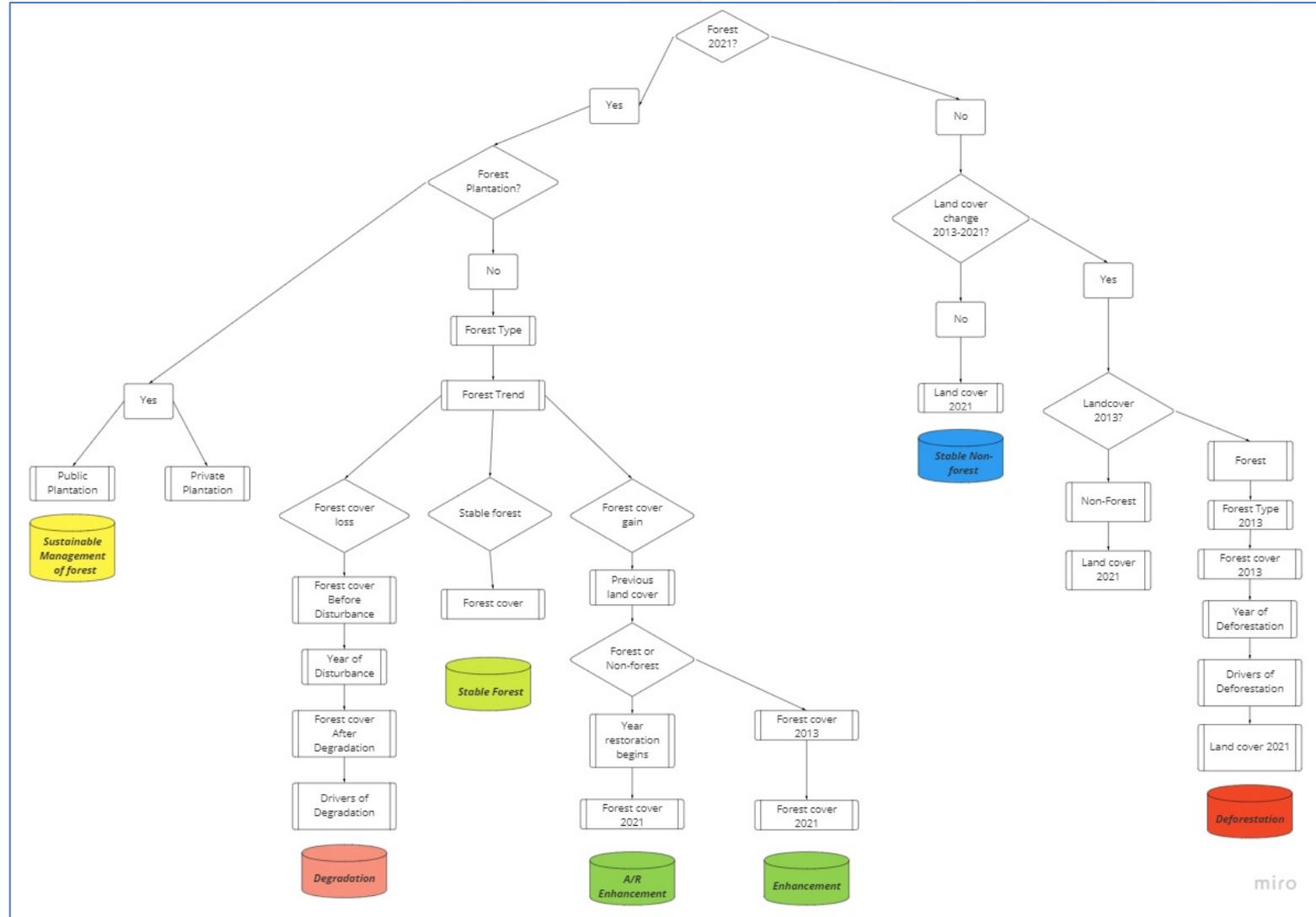
Ministry of Environment and Forestry

The National Forest Reference Level for REDD+
Implementation

August 2020

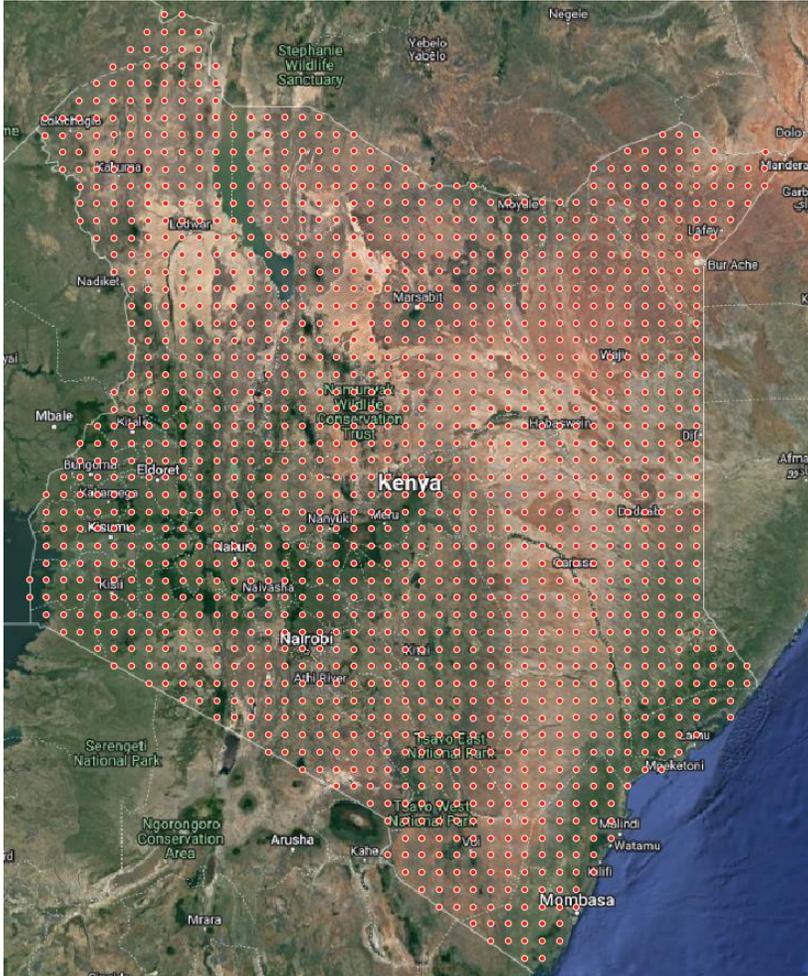
IMPRESS Activity Data Collection

- **MRV Gap assessment**
 - Crediting level 2013 – 2017 (Reference Period)
 - Crediting period 2018 – 2022
 - Sample Based Area Estimation (Activity Data)
- **Response Design**
 - Land cover classes same as FREL to define REDD+ activities
 - Coastal and Mangrove Forests split
 - Montane and Western Rain Forests split



Decision tree used for point interpretation

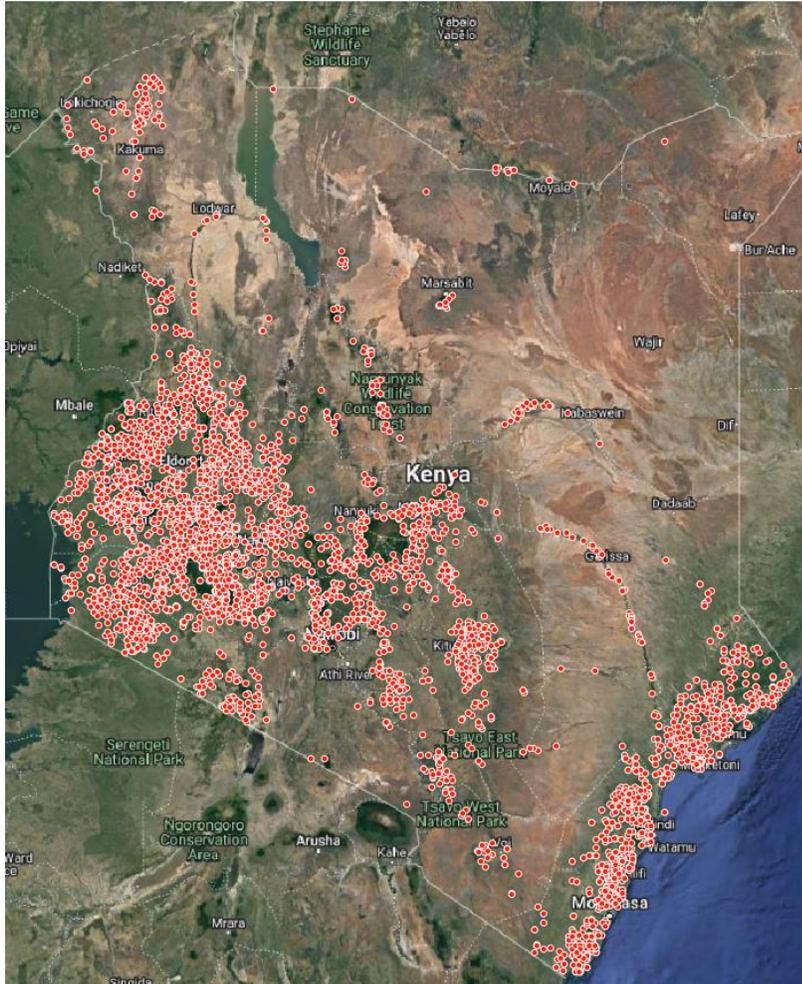
IMPRESS Activity Data Collection – 20km Grid



- Initial data collection undertaken on 20km Grid
- **1494** sample points
- Collect Earth Online
- 13 image interpreters
 - DRSRS
 - KFS
 - RCMRD
- ~100 sample points per interpreter
- Land cover and land use change data collected



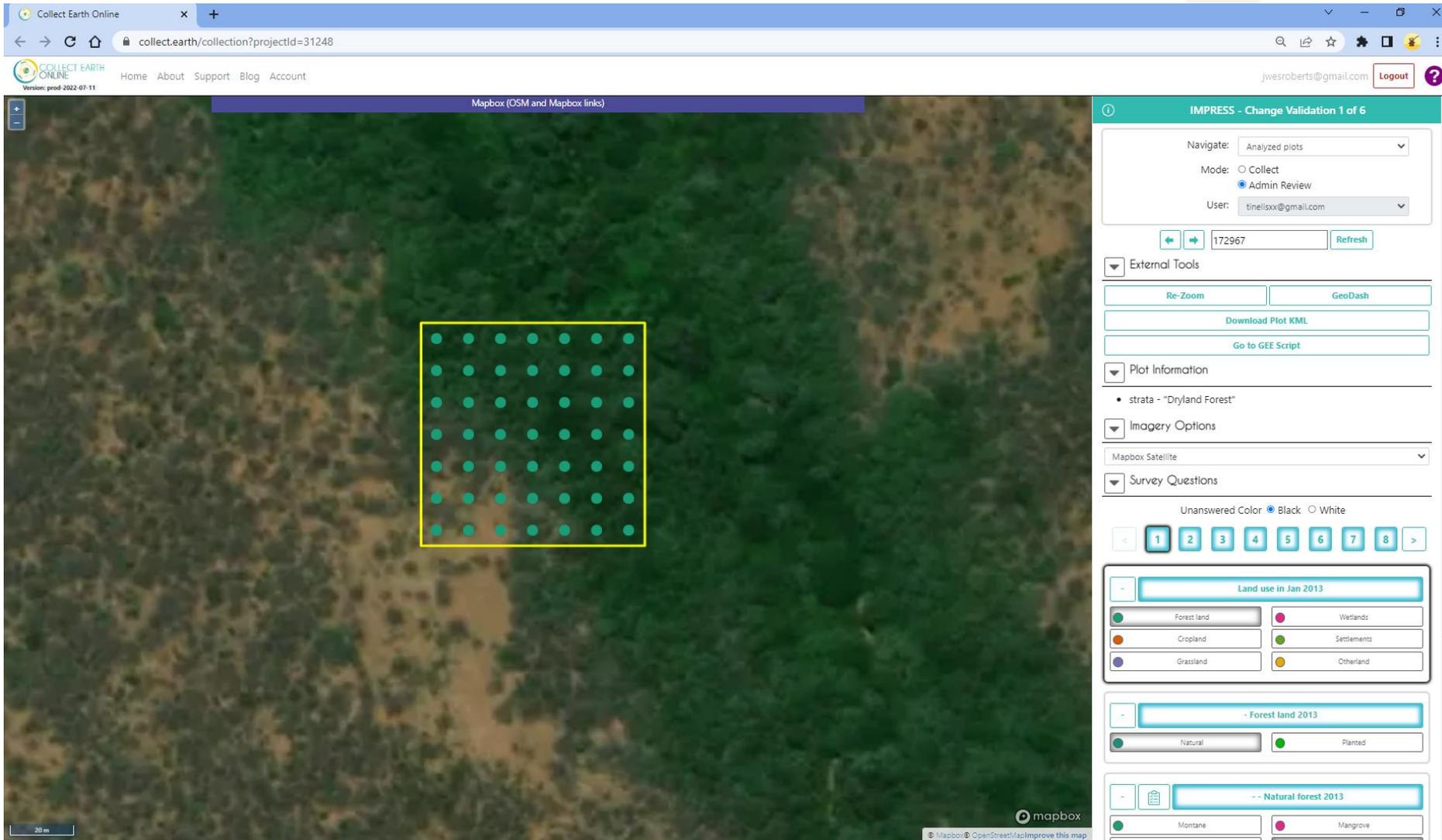
IMPRESS Activity Data Collection – 2km Grid



- Change validation undertaken on 2km grid
- TS analysis - **5559** potential change location
- Updated Collect Earth Online survey used for the 2km grid
- Same interpreters used as the 20km grid
- 500 points per interpreter
- Land cover and land use change data collected



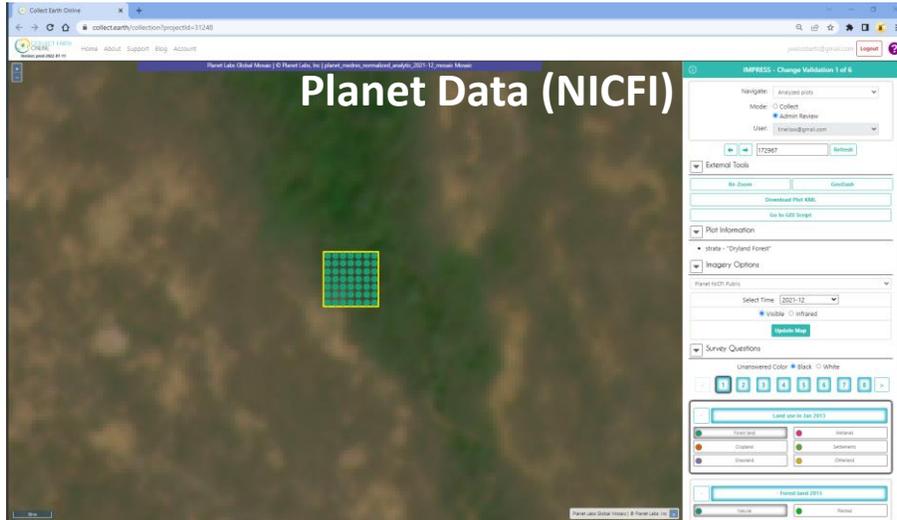
Collect Earth Online Data – Sample Unit



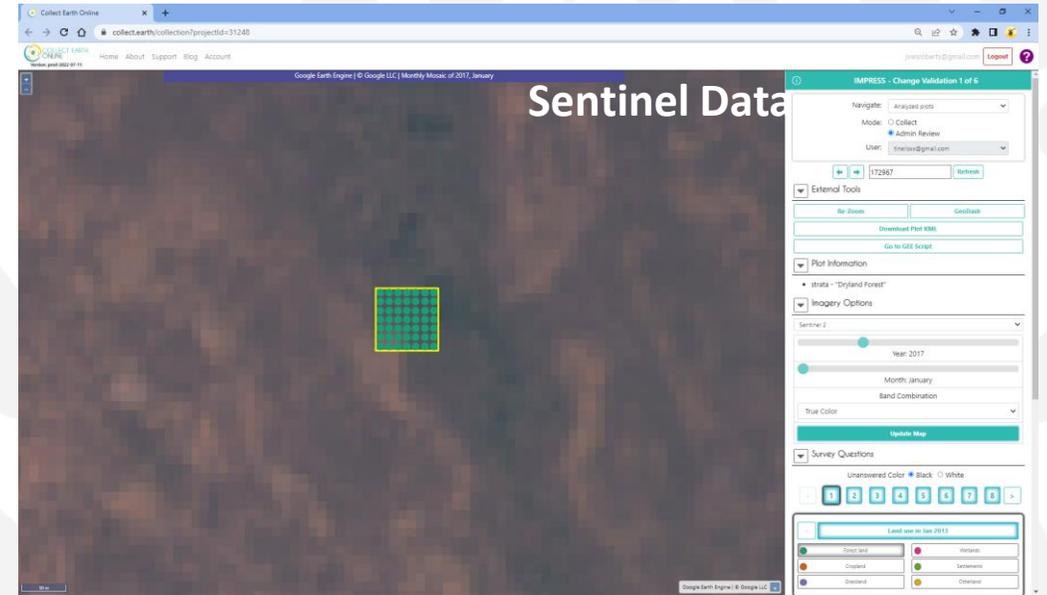
- Sample unit 70m x 70m (~0.5ha)
- 49 internal grid points (2%)
- Sample unit = interpretation + spatial support unit



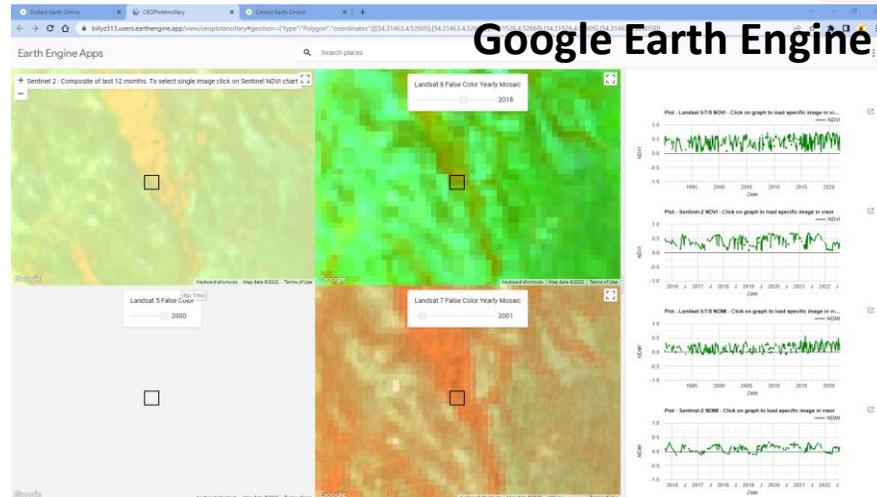
Collect Earth Online Data



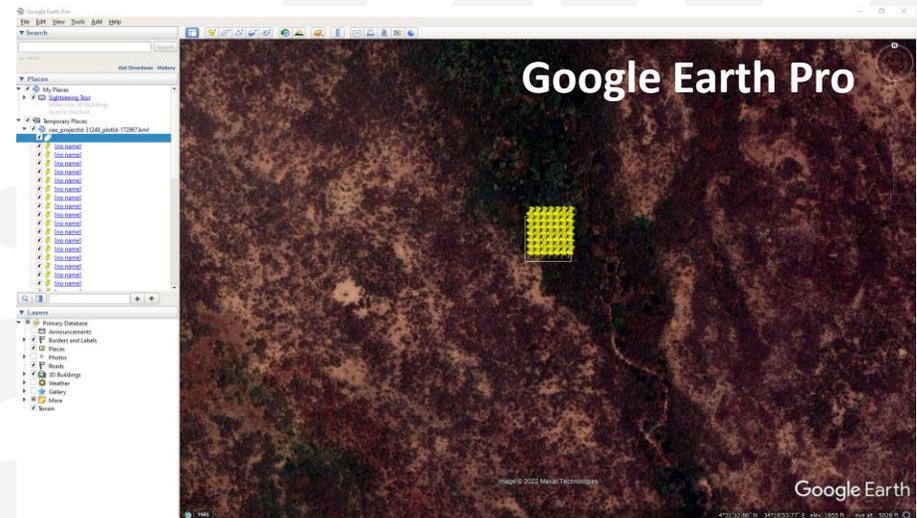
Monthly composites, 2016 – 2021, 5m resn



Monthly composites, 2015 – 2022, 10m resn



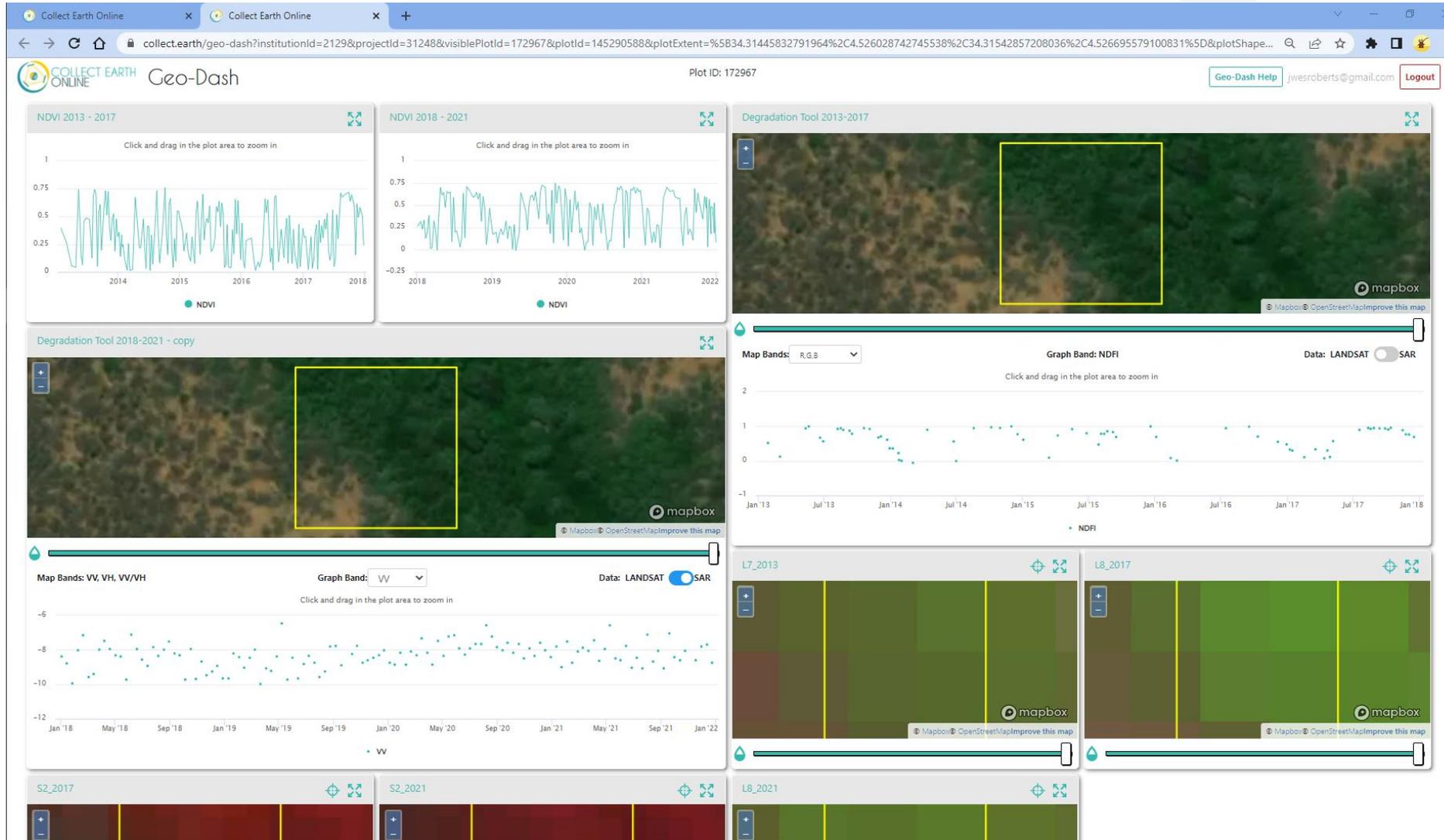
Landsat and Sentinel composites, Time Series data



Very high resolution data



Collect Earth Online Data – Geo-Dash



- NDVI TS graphs
- Normalized Difference Fraction Index
- Landsat Composites



Quality Assurance and Quality Control

- QAQC procedures implemented in survey
 - Flagged plots
 - Interpretation confidence (0 – 100%)
 - Numeric range rules (Forest Cover % and Dates)
 - Unlikely transitions
- Post data collection QAQC by a team of experienced Interpreters
 - Low confidence points (<90%)
 - Flagged points
 - Omitted potential change
 - Dryland forest assessment
 - Forest type assessment
 - Unlikely transitions
 - Deforestation
 - Degradation
 - Restoration



Thank you.

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