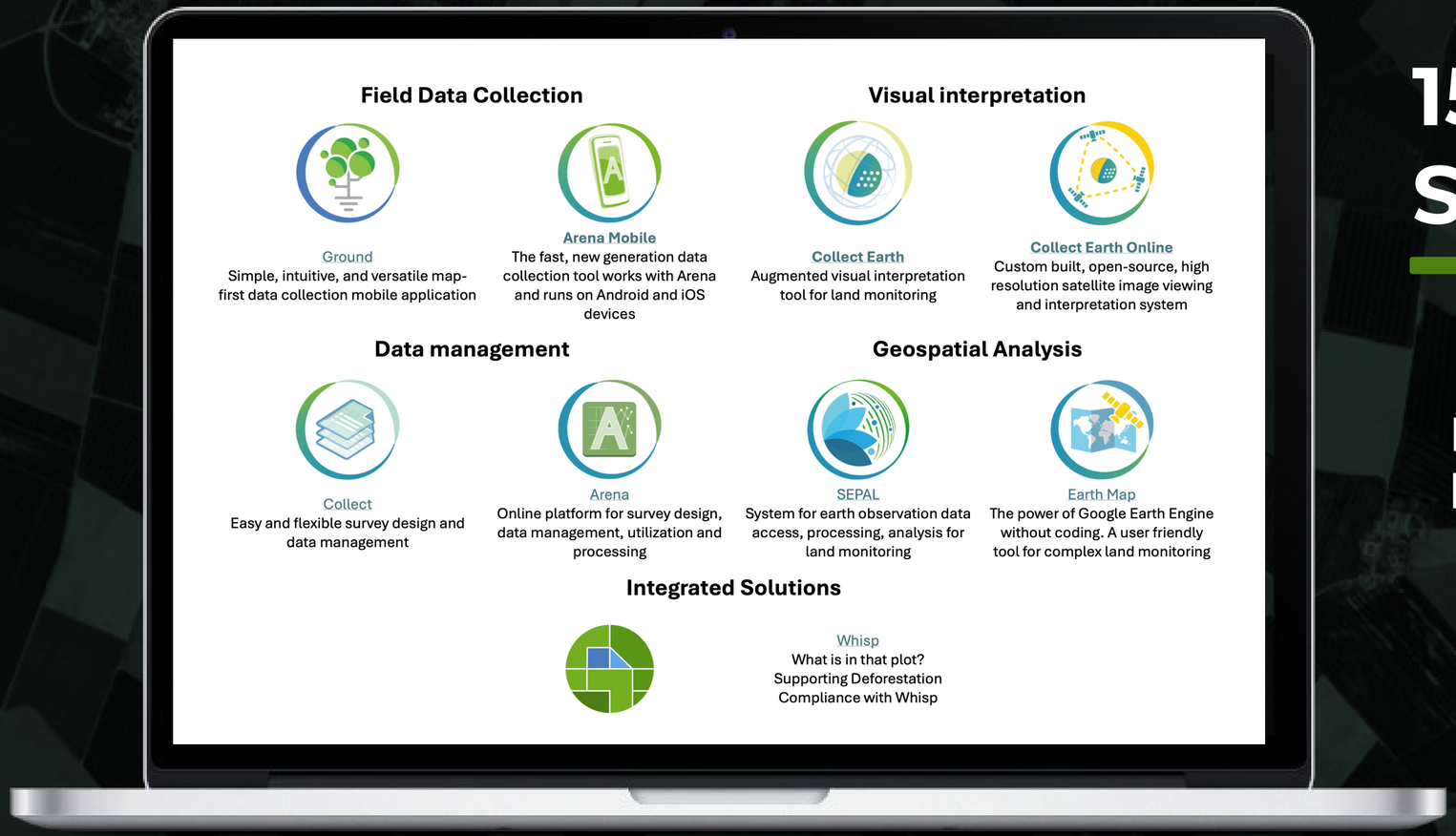
openforis

Food and Agriculture Organization of the United Nations

Innovation journey for the forest monitoring tools developed in FAO

Yelena Finegold
FAO Forestry Officer
BIOSpace Conference
11 February 2025



15+ years work on Solutions – Open Foris

Digital innovation has transformed how we monitor the world's forests

250,000
Users

196
Countries and Territories

89%
UNFCCC FREL

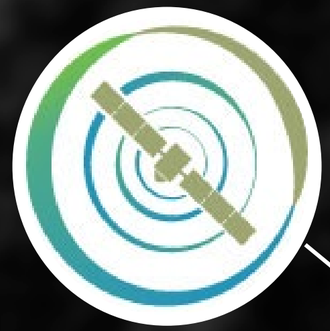
25+
Developers

1150
Questions on Forum

Open Foris Timeline

From a script to a galaxy of solutions

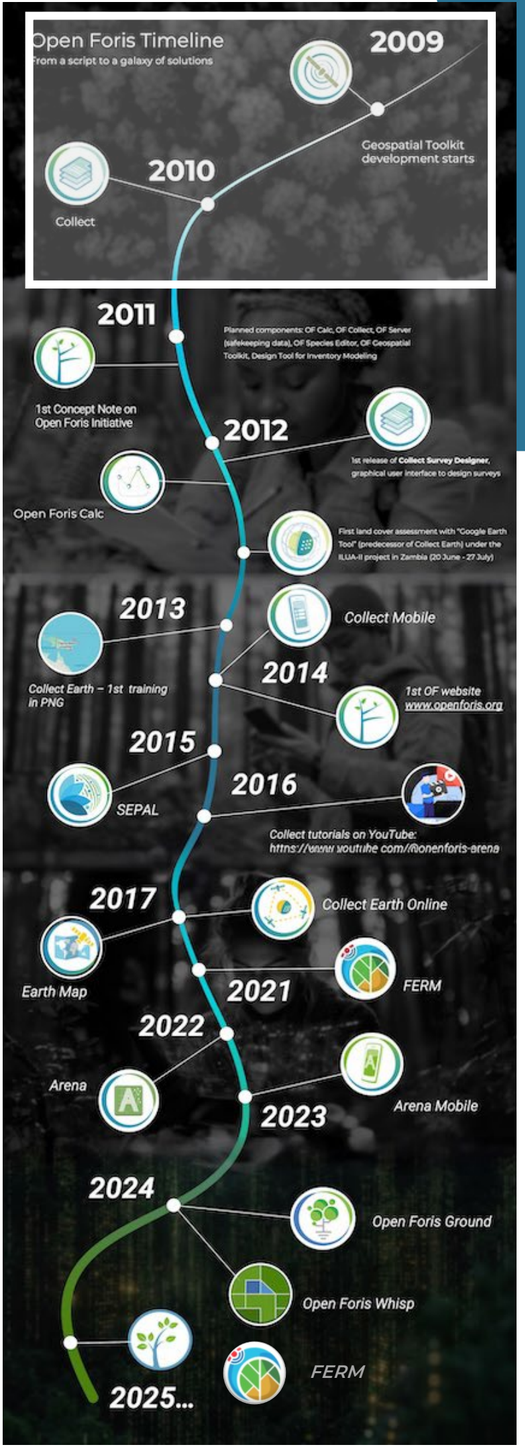
2009



Geospatial Toolkit
development starts

2010

Collect



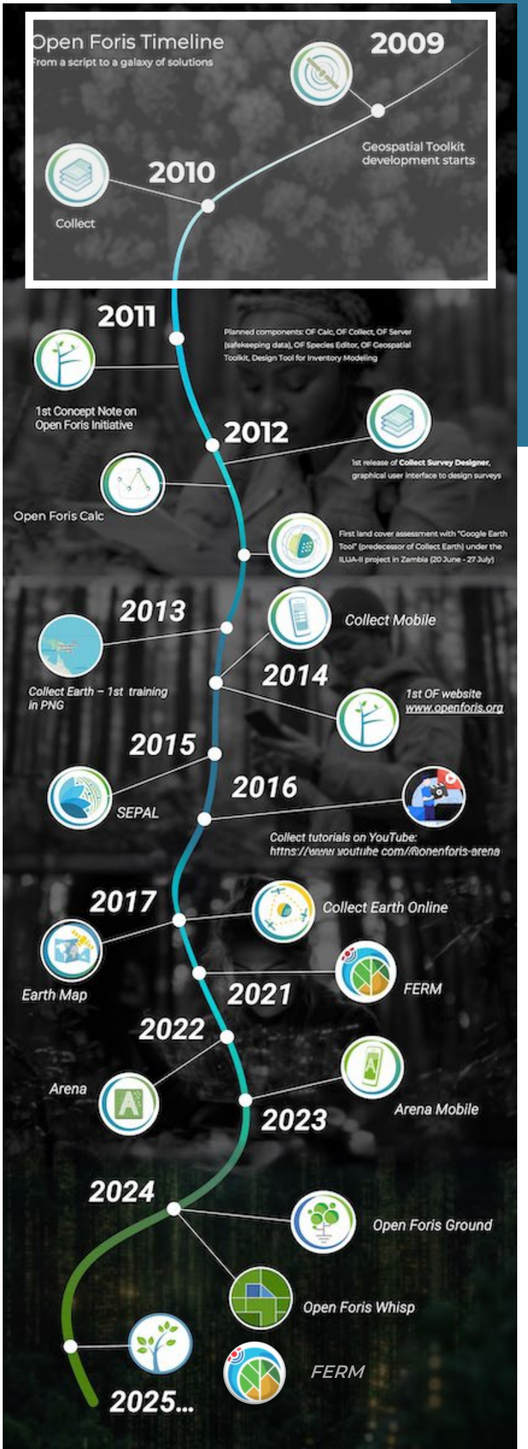
Open Foris 2009

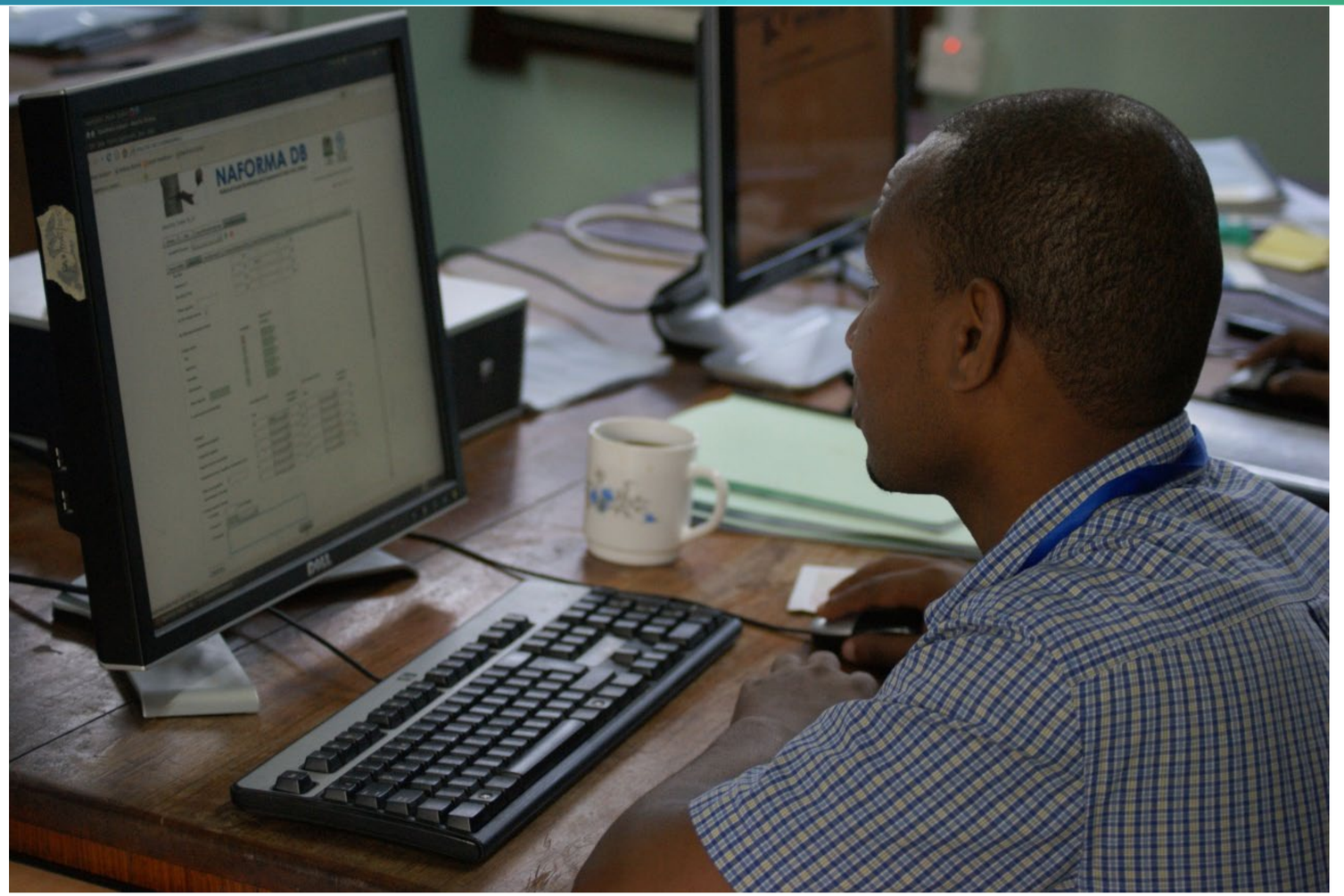
The Beginning

- Initial development: desktop programs for download
- Transitioned to mobile tools for field data collection
- Shift towards web-based platforms for broader accessibility
- Now focusing on innovative monitoring

Collect

2010





2011

Planned components: OF Calc, OF Collect, OF Server (safekeeping data), OF Species Editor, OF Geospatial Toolkit, Design Tool for Inventory Modeling

1st Concept Note on Open Foris Initiative

2012

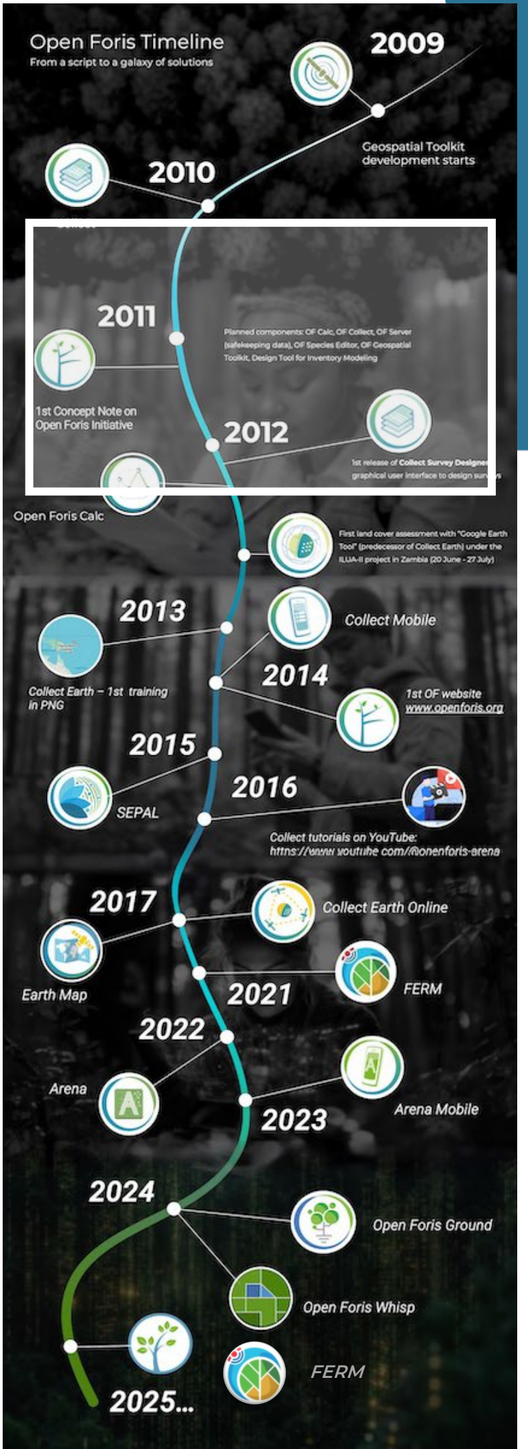
1st release of **Collect Survey Designer**, graphical user interface to design surveys

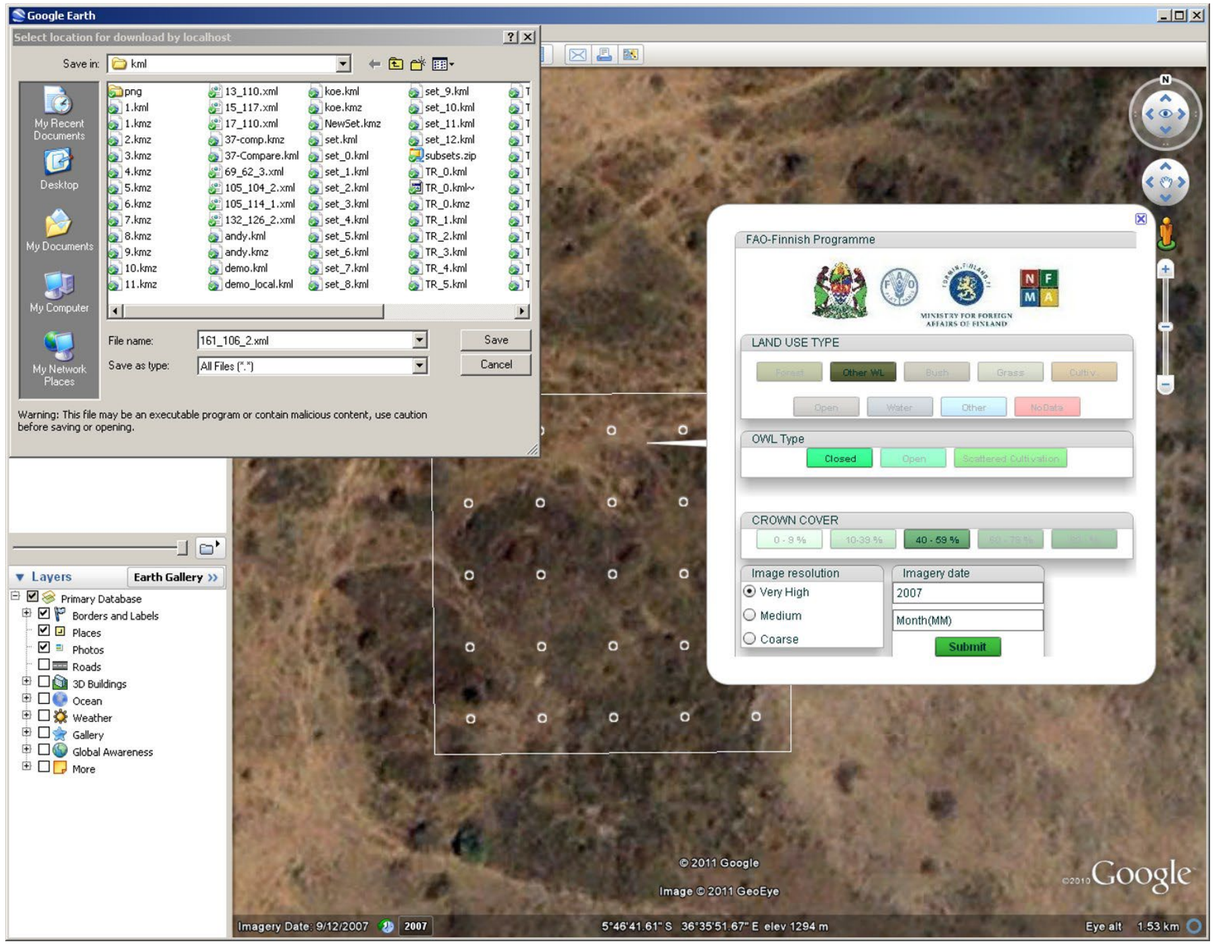
Open Foris Calc

First land cover assessment with “Google Earth Tool” (predecessor of Collect Earth) under the ILUA-II project in Zambia (20 June - 27 July)

Google Earth Data Collector

2010





Open Foris Collect Earth

2011 2024

UX is Key!

Improved UI with simple design > complex development:

- 1000s of users
- Mio of plots

2013

Collect Earth – 1st training in PNG

Collect Mobile

2014

1st OF website
www.openforis.org

2015

SEPAL

2016

Collect tutorials on YouTube:
https://www.youtube.com/@openforis-arena

FAO-Google MoU

Open Foris SEPAL

2015 2024

SDMS
Space Data Management System

Erik.Lindquist
Logout

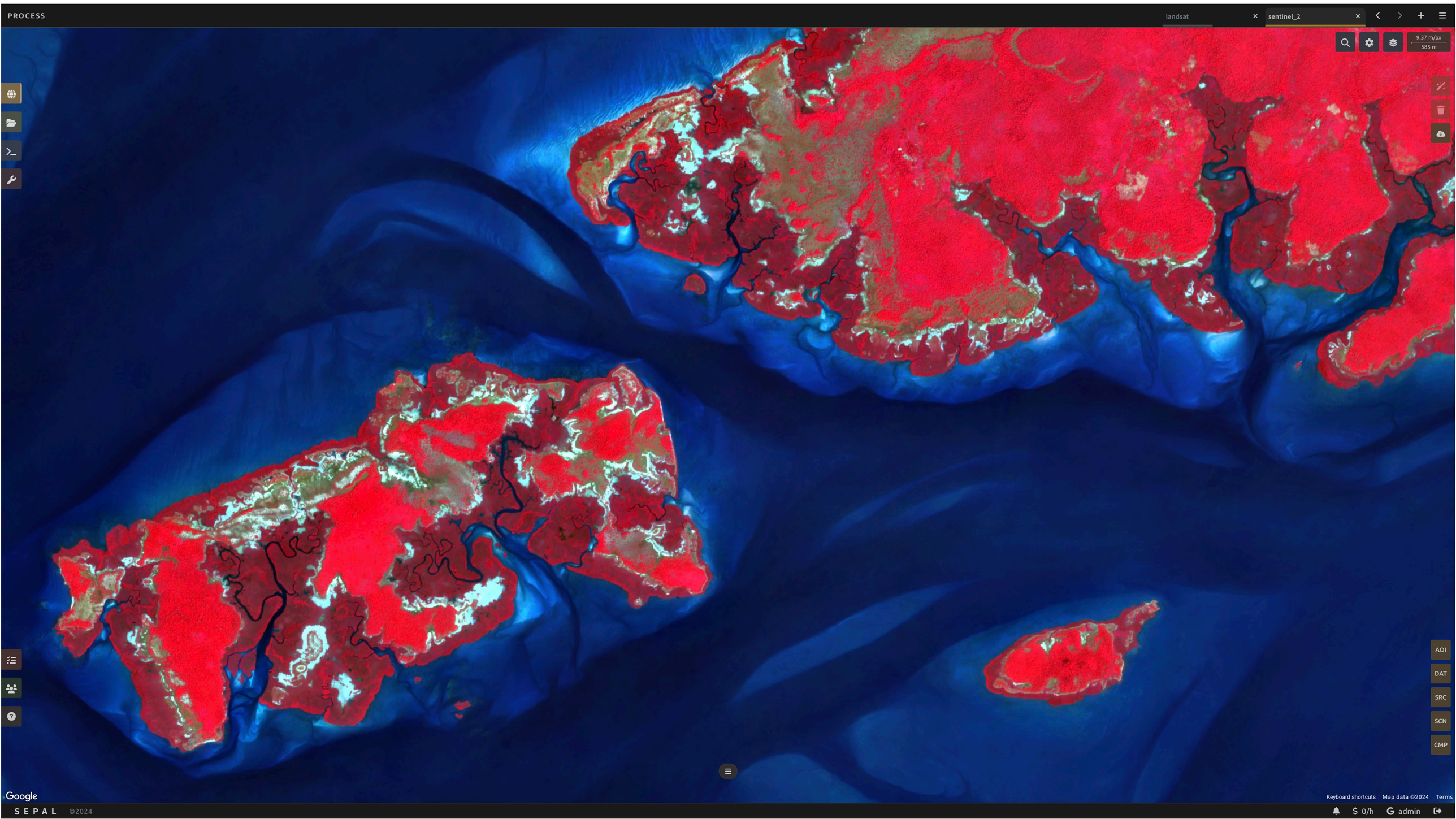
Dashboard Manage Terminal Search Contact us

Dashboard/Terminal

[Video](#)

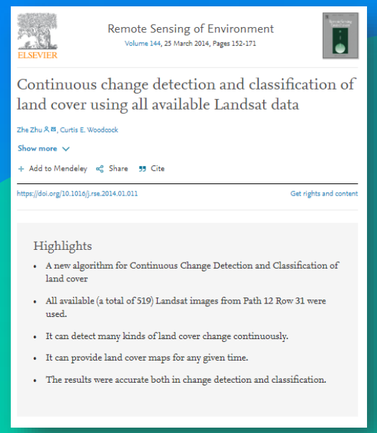
SDMS: Terminal

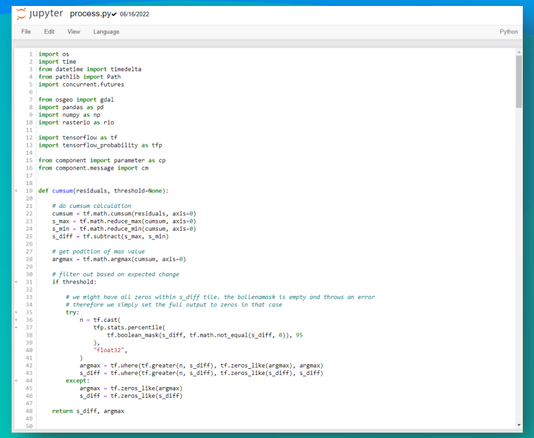
```
Erik.Lindquist@ip-172-31-35-235:~$ ls
sdmsrepository
Erik.Lindquist@ip-172-31-35-235:~$ cd sdmsrepository/
Erik.Lindquist@ip-172-31-35-235:~/sdmsrepository$ ls
LT517706119860O4XXX01
Erik.Lindquist@ip-172-31-35-235:~/sdmsrepository$ cd LT517706119860O4XXX01/
Erik.Lindquist@ip-172-31-35-235:~/sdmsrepository/LT517706119860O4XXX01$ ls -lrt
total 366676
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B1.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B2.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B3.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B4.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B5.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B6.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist 53476198 Jan 14 13:17 LT517706119860O4XXX01_B7.TIF
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist    19533 Jan 14 13:17 LT517706119860O4XXX01_GCP.txt
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist    65535 Jan 14 13:17 LT517706119860O4XXX01_MTL.txt
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist   365653 Jan 14 13:17 LT517706119860O4XXX01_VER.jpg
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist   253574 Jan 14 13:17 LT517706119860O4XXX01_VER.txt
-rw-r--r-- 1 Erik.Lindquist Erik.Lindquist     9201 Jan 14 13:17 README.GTF
Erik.Lindquist@ip-172-31-35-235:~/sdmsrepository/LT517706119860O4XXX01$
```

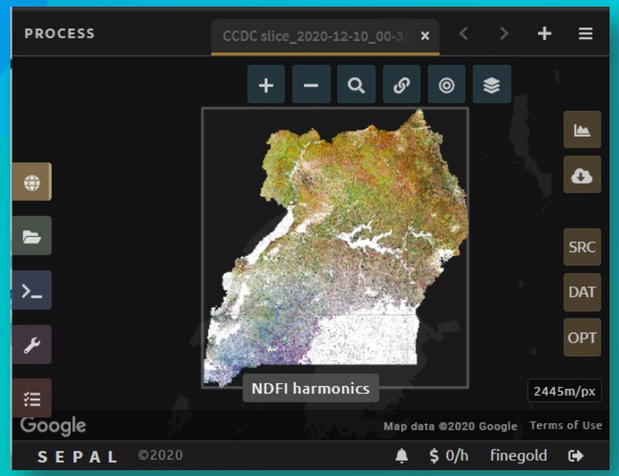

PROCESS
landsat
sentinel_2
9.37 m/px
585 m
AOI
DAT
SRC
SCN
CMP
Google
Keyboard shortcuts
Map data ©2024
Terms
SEPAL
©2024
0/h
admin

PROCESS
landsat
sentinel_2
18.8 m/px
1.17 km
AOI
DAT
SRC
SCN
CMP
Google
Keyboard shortcuts
Map data ©2024
Terms
SEPAL ©2024
0/h
admin

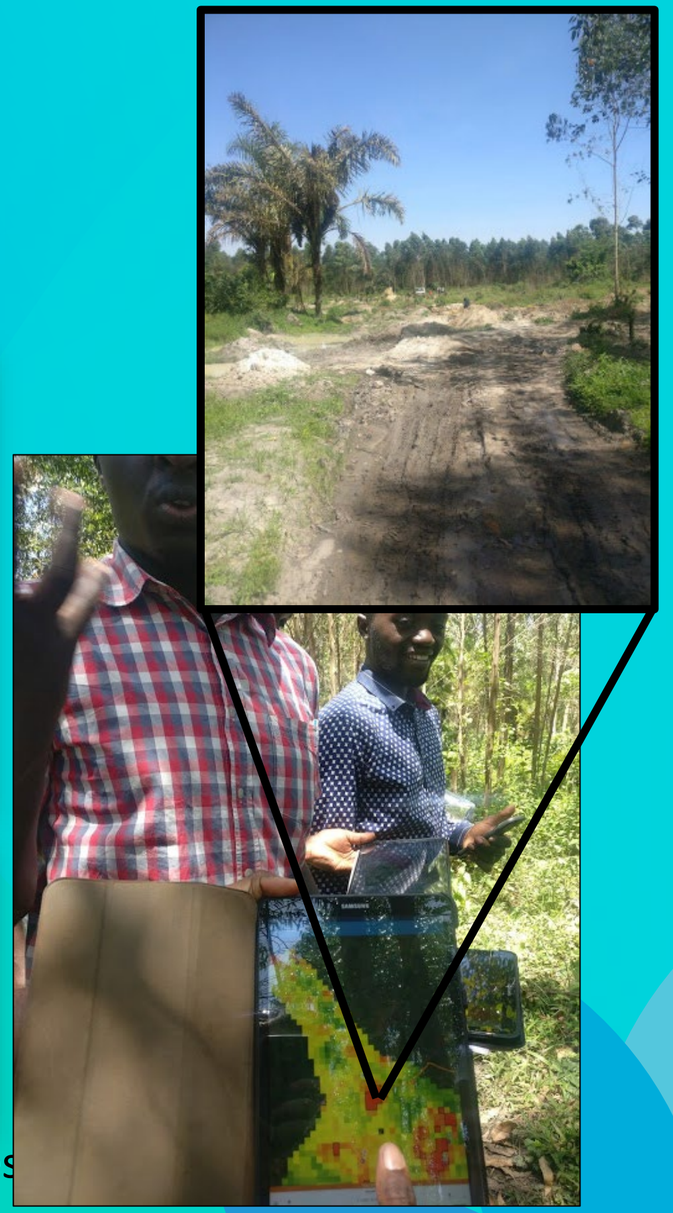
Bridging science and practice, democratizing data







Big data processing - Time series analysis in Uganda



- Consistently apply best practices and advanced methods
- Allow large scale implementation
- Allow trial and error – fail faster

SEPAL

Why SEPAL?

Without SEPAL

With SEPAL

- User friendly
- Efficient
- Transparent
- No need of programming skills
- Access anytime anywhere
- Continuously developing tool

SEPAL

2017

Collect Earth Online

Earth Map

2021

FERM

2022

Arena

Arena Mobile

2023

2024

Open Foris Ground

Open Foris Whisp

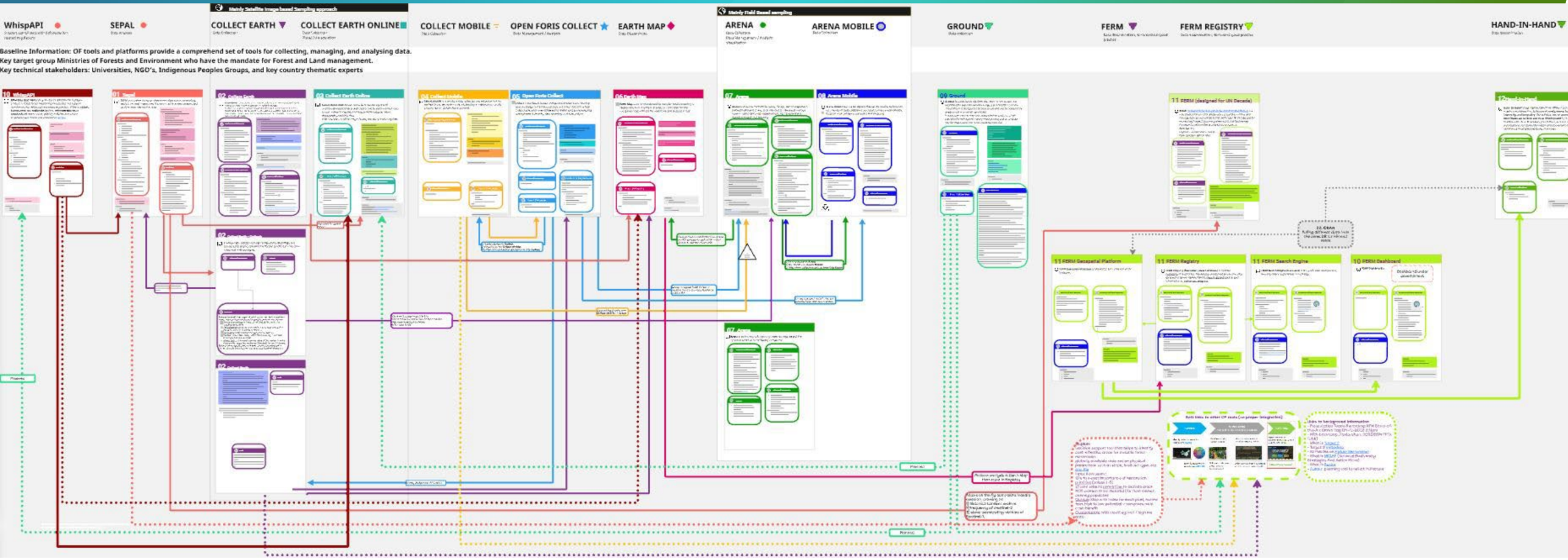
FAO-Google MoU

2025...

The Framework for Ecosystem Restoration Monitoring (FERM)

Open Foris Ecoystem

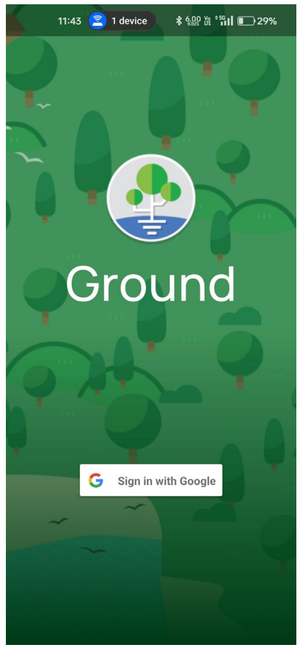
2024

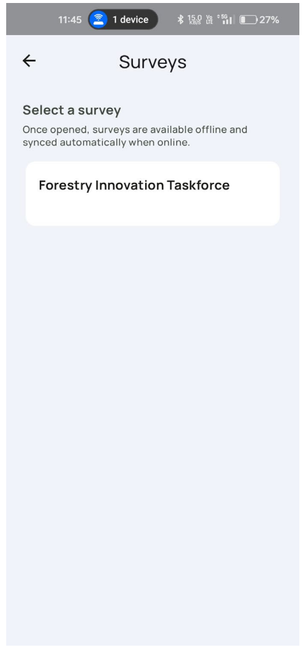


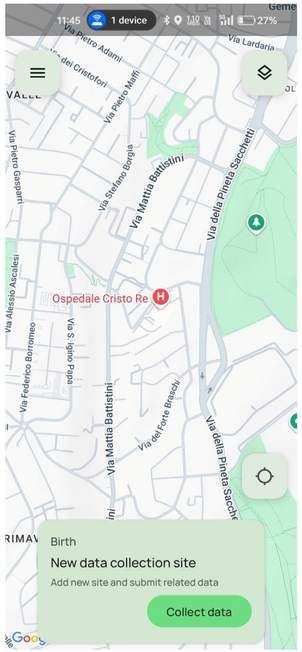
Open Foris Ground

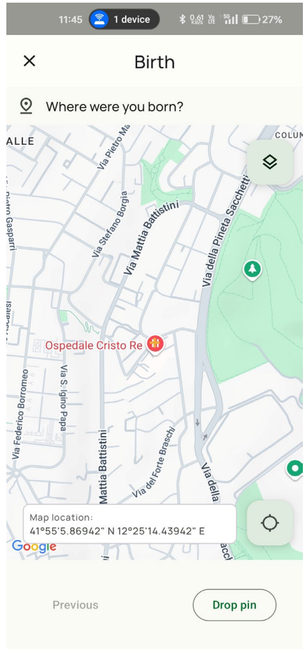
2023 2024

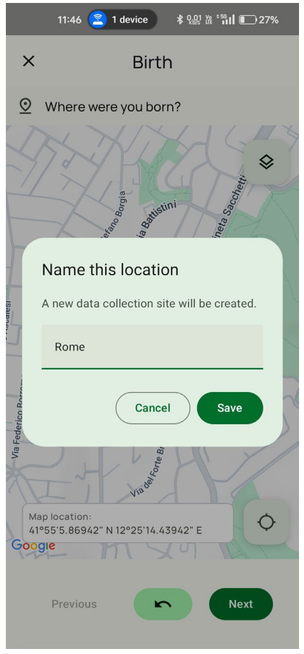
Data collection steps

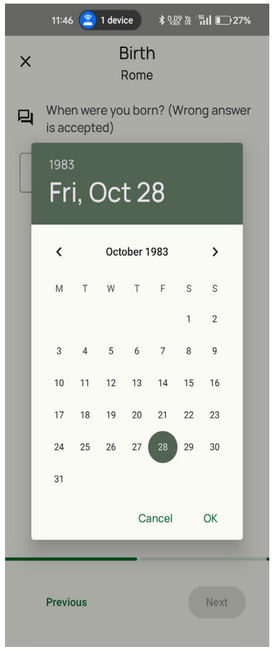


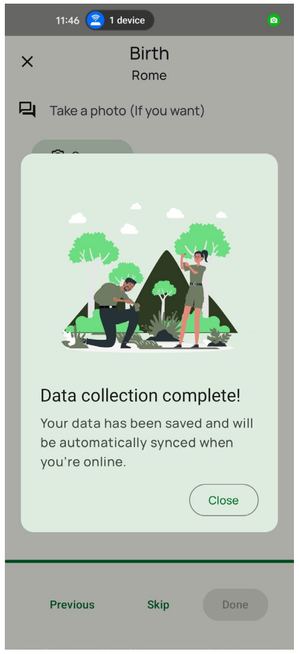






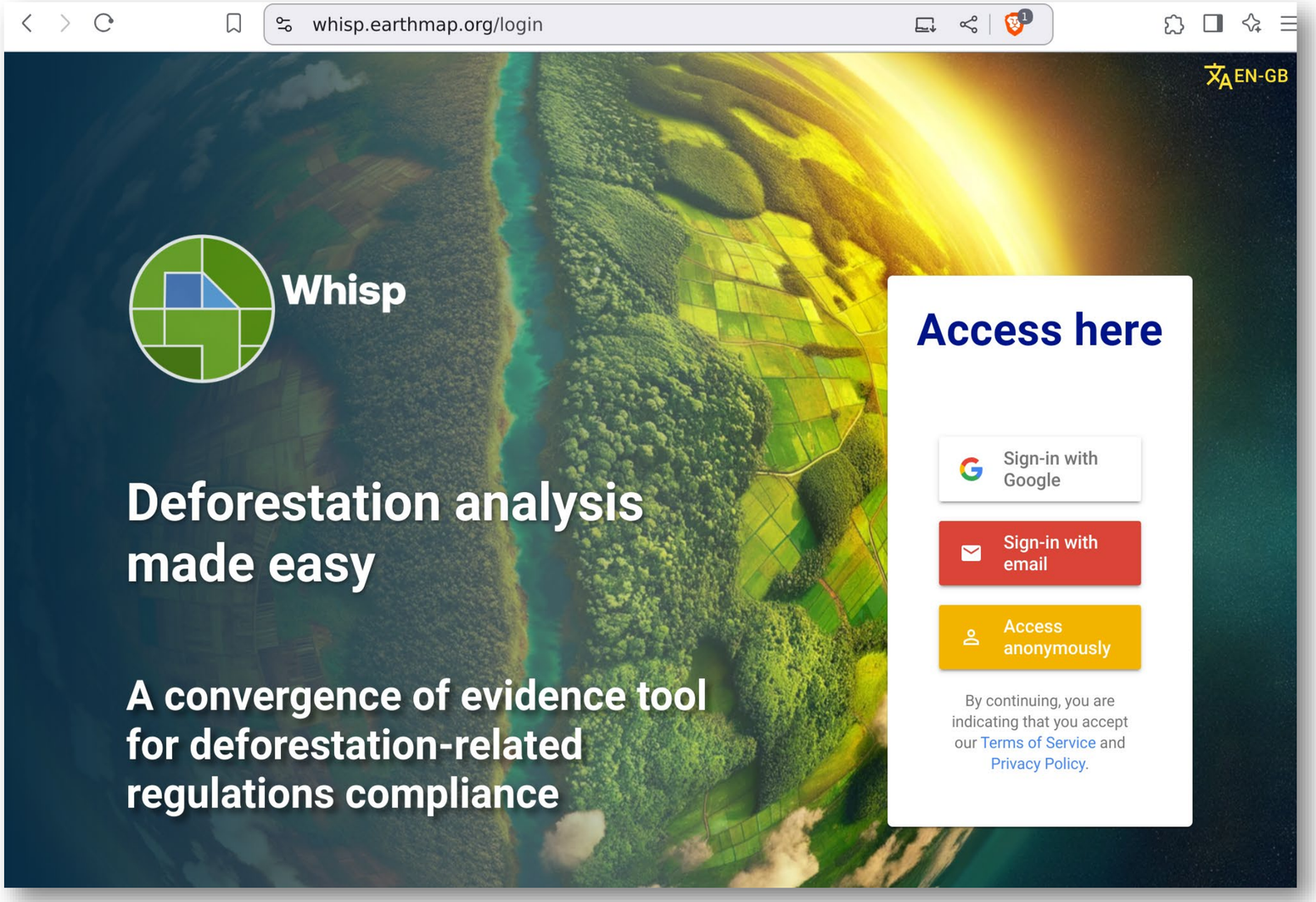






Open Foris Whisp in EarthMap

2024



User adoption - Whisp

2024

ITC | Deforestation-Free Trade Gateway

English | Log out

My company data | Manage access (1) | Deforestation analysis

Back

Deforestation Analysis

Open Foris Whisp | Global Forest Watch | EC JRC (EU Forest Observatory)

Whisp (What is in that plot) is an open-source solution which helps to produce relevant forest monitoring information and support compliance with deforestation-related regulations.

The deforestation risk analysis presented below uses information generated by Whisp to classify plots of land into three risk levels:

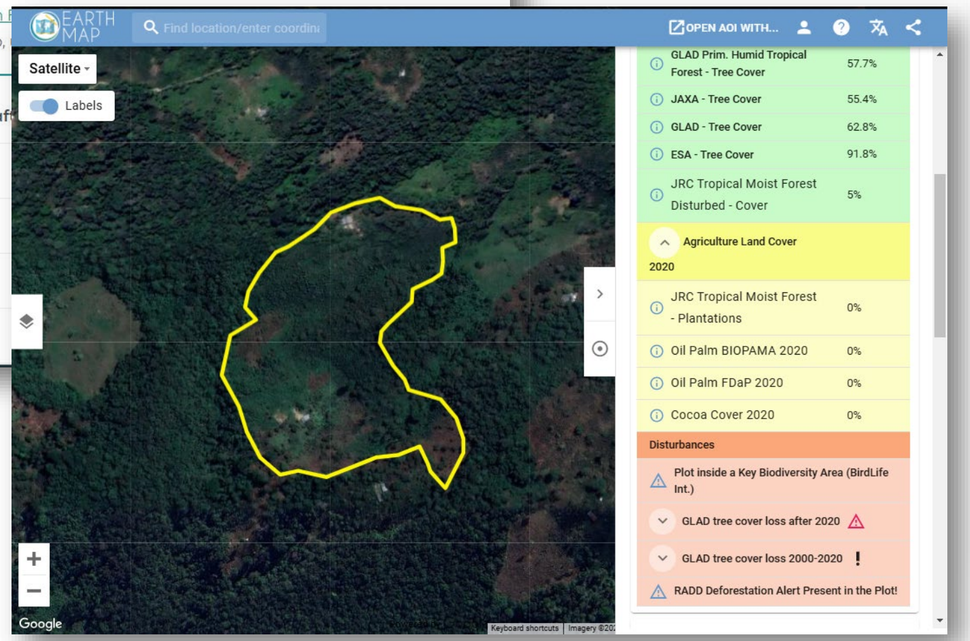
- **Low Risk:** Any plot outside of mapped forest, overlapping with an available commodity map or with any observed disturbance map before 2020.
- **High Risk:** Plot is within mapped forest, not within any mapped commodity, and only disturbances detected after 2020.
- **More information needed:** Plots that have not been disturbed or lack other evidence to determine their risk level. This classification highlights areas that require further investigation.

You can read more about the Convergence of Evidence approach and risk assessment methodology at the Open

For each of the plots, you can also access more detailed, visual analysis tools through the embedded WhispMap,

Land plot	Tree cover	Commodities	Disturbance before 2020	Disturbance af
1	yes	no	yes	yes
2	yes	no	yes	yes
3	yes	no	yes	yes

« ‹ 1 › »

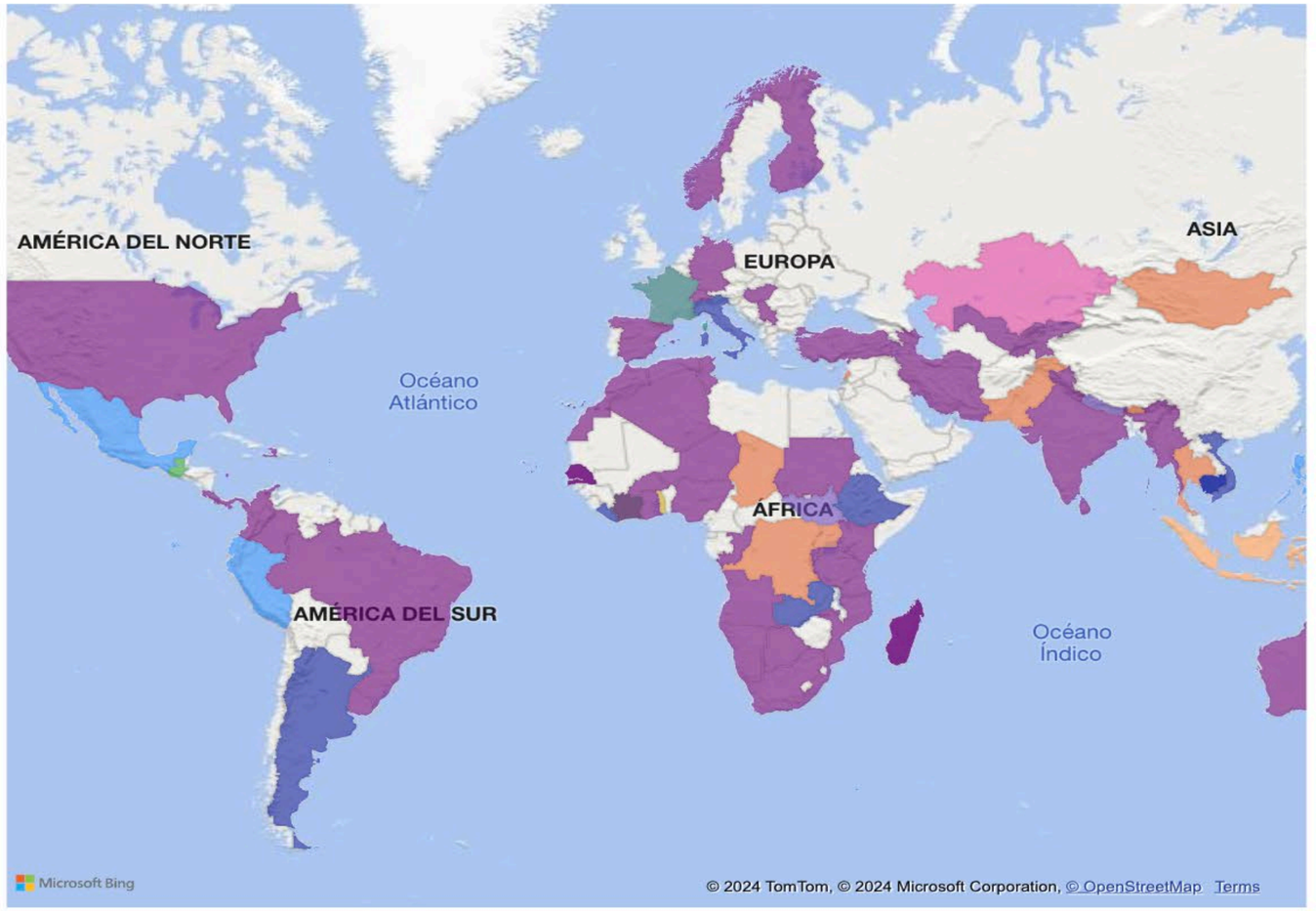


https://bit.ly/WhispOverview

Open Foris Capacity Building

2014 - 2024

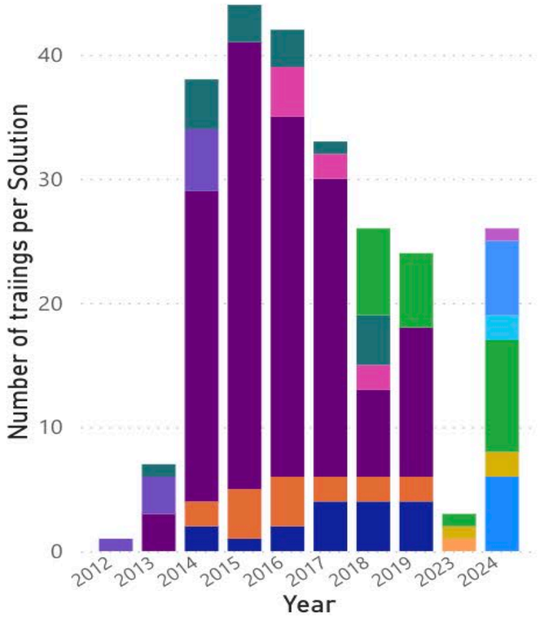
Solution
- Arena
- Calc
- CEO
- Collect
- Collect Earth
- Collect Mobile
- Geospatial Toolkit
- Ground
- Open Foris
- SEPAL
- Whisp
- Whisp, Ground
- Whisp, Ground, SEPAL

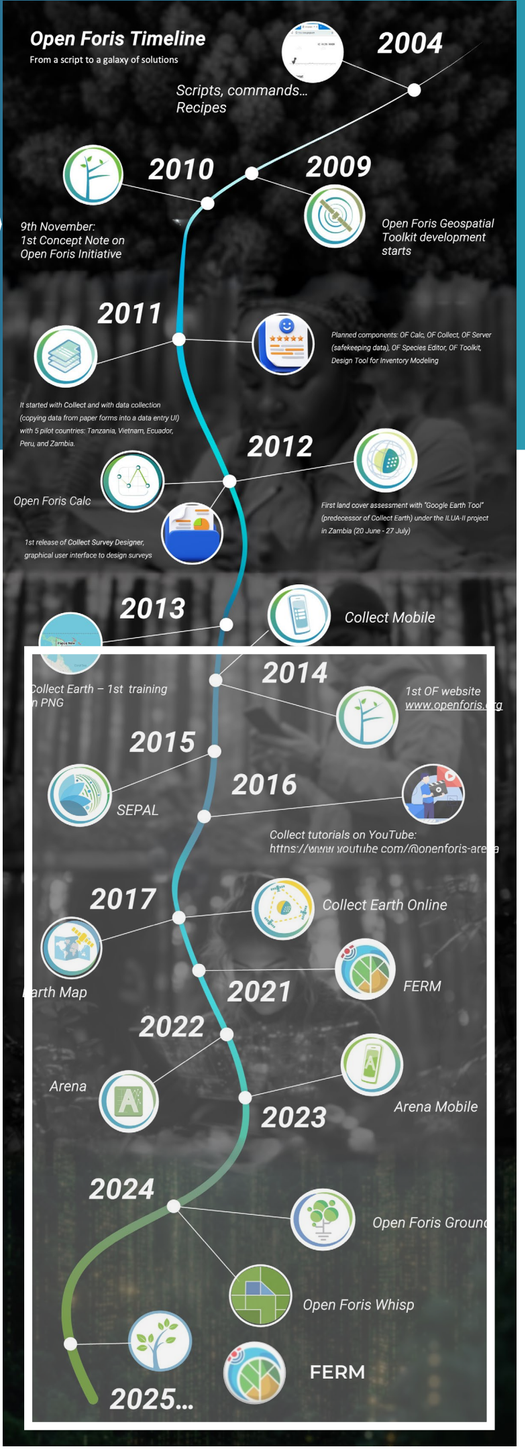


244
Trainings

92
Countries

Solution
- Arena
- Calc
- CEO
- Collect
- Collect Earth
- Collect Mobile
- Geospatial Too...
- Ground
- Open Foris
- SEPAL
- Whisp
- Whisp, Ground
- Whisp, Ground...





Open Foris

2014 - 2024

Forest Monitoring

Our work | Forest Monitoring | Data platforms | News and Events | Resources | **Dashboard**

Reference Levels Submitted to the UNFCCC

Forests play a key role in the fight against climate change. To measure impact, unlock results-based finance, and support decision making, countries need transparent and reliable forest data for assessment of forest carbon fluxes. A forest reference emission level and/or forest reference level (hereafter reference level) serves as a benchmark for evaluating a country's progress in implementing activities to reduce deforestation and degradation and enhance forest carbon stocks (referred to as REDD+).

Developing countries can voluntarily submit a reference level to the UNFCCC (United Nations Framework Convention on Climate Change), which is a requirement for accessing results-based payments.

Countries can submit multiple reference levels for reasons such as expanding the area covered, including more activities, updating data, or improving methods.

This section offers an overview of the choices countries have made in their submitted reference levels and how they assess their emission reductions against these benchmarks.

For more details, click here.

UNFCCC Reference Levels Dashboards

Submissions and forest area

Reference levels elements

E-Learning

Measurement, reporting and verification for environmental integrity: Introduction

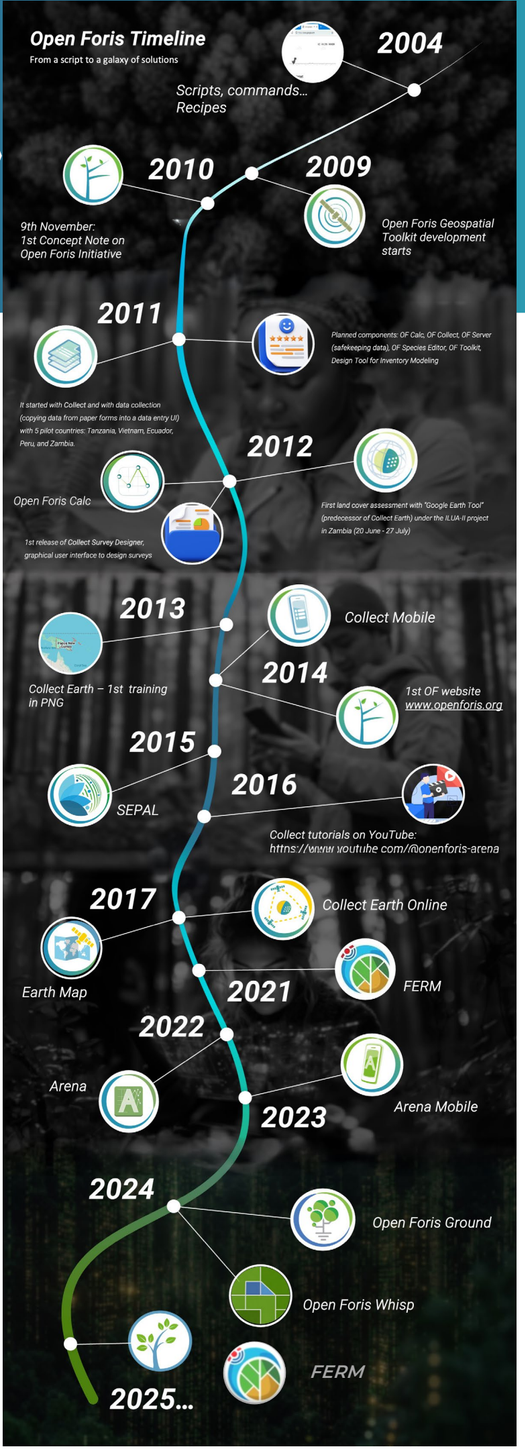
15/11/2024

This course highlights the importance of forests in climate change mitigation and how quality measurement, verification and reporting (MRV) is needed...

Events

Enhancing Forest Monitoring and Collaboration: a South-South Knowledge Exchange

HYBRID EVENT, 25/11/2024



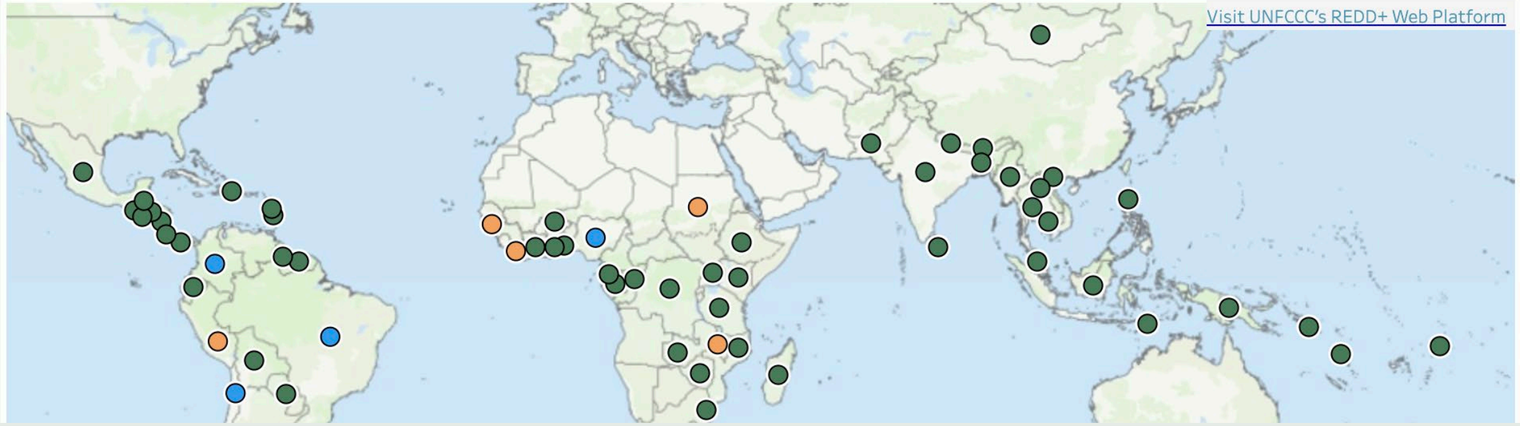
Open Foris MRV Dashboard 2024

Number of reference level submissions	Number of countries	Forest area (in 1 000 hectares)
93	63	1.647.370

Map of reference level submissions

National · Subnational · Subnational followed by National

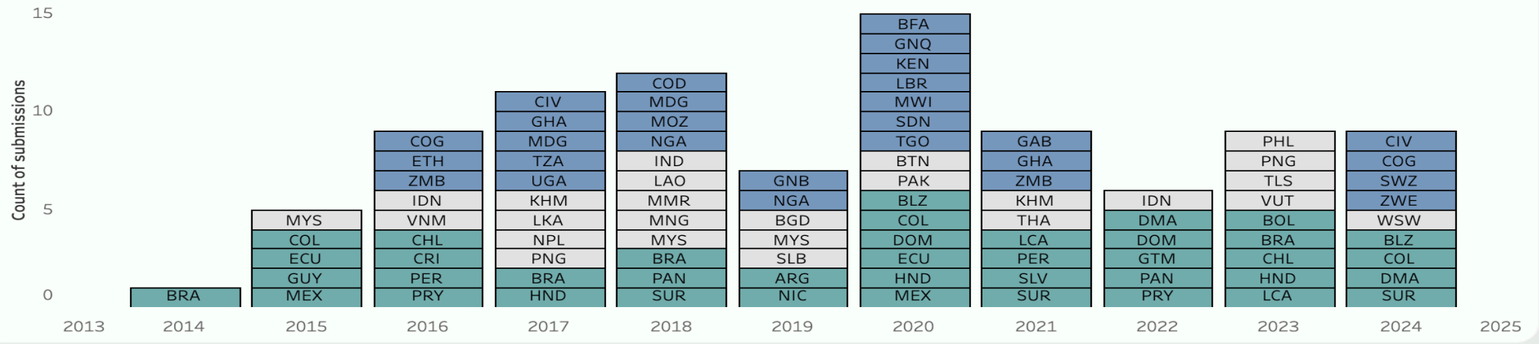
Visit UNFCCC's REDD+ Web Platform

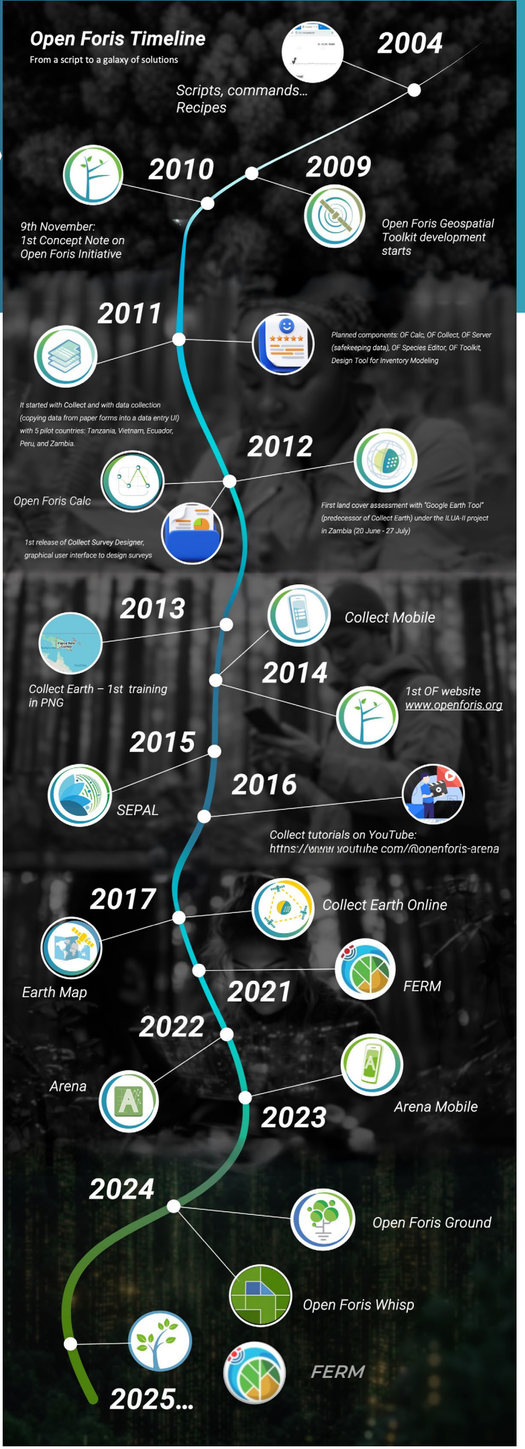


Total annual reference level submissions

Africa · Asia - Pacific · Latin America and the Caribbean

Additional filter: (•) Total annual ( ) Cumulative





Integrating the FERM

2025

The **official framework** for operational monitoring of global restoration progress and disseminating good practices for the **UN Decade** and reporting areas under restoration towards **Target 2** of the **KM-GBF**

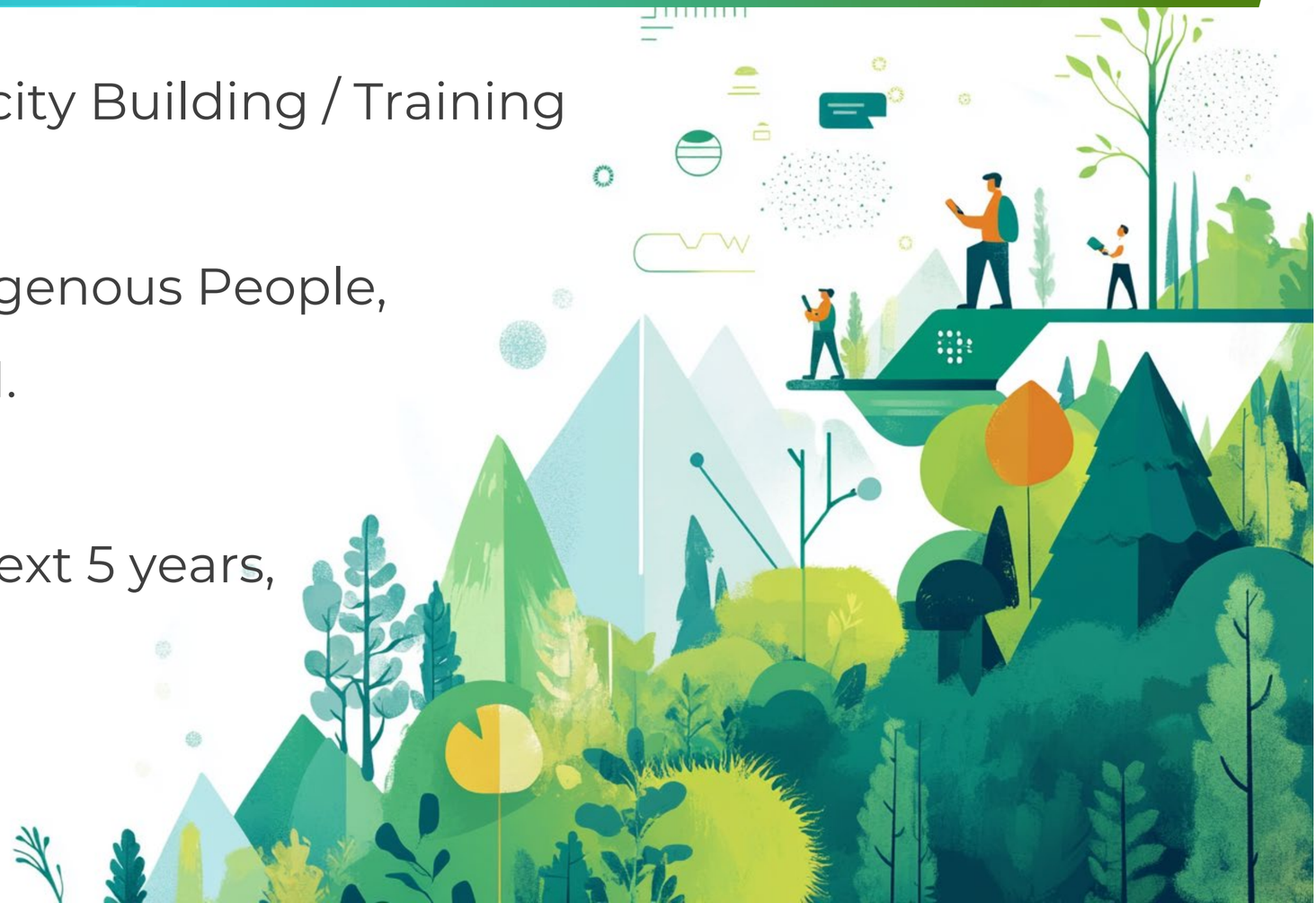
https://ferm.fao.org

FRAMEWORK FOR ECOSYSTEM RESTORATION MONITORING

UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030

Open Foris Heading towards 2025 & beyond...

- Request from Countries + Capacity Building / Training + technical advances
- Commodities, Restoration, Indigenous People, potential collaboration with OIN.
- Digital Public Infrastructure
- Potential data available in the next 5 years, "conversational maps"



Key Takeaways from the Open Foris Journey

2011 - 2025 & beyond...

Lessons Learned:

- Openness: Building trust through transparency.
- Interoperability: Seamless integration across systems.
- User-Centric Design: Meeting diverse user needs effectively, e.g. simplified solutions

Key Takeaways from the Open Foris Journey

2011 - 2025 & beyond...

Ongoing Challenges:

- Expanding reach to diverse user groups: While innovative tech-wise, we need to improve outreach
- Managing redundancy and data overlap.
- Ensuring long-term sustainability (funding).

openforis

Food and Agriculture Organization of the United Nations

Thank you!

yelena.finegold@fao.org

Openforis.org