localhost:8501

Step 1: The Architecture.

An overview of the end-to-end Python pipeline:

From Sentinel-2 Tasking to Automated Risk Auditing.

Relaunch to update

All Bookmark

Deploy

Presets Values

EcoSentinel

Select Region & Date

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Use Presets

Search Anywhere

Draw Area

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Amazon Rainforest (Defor…

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2025/03/01 – 2025/03/31

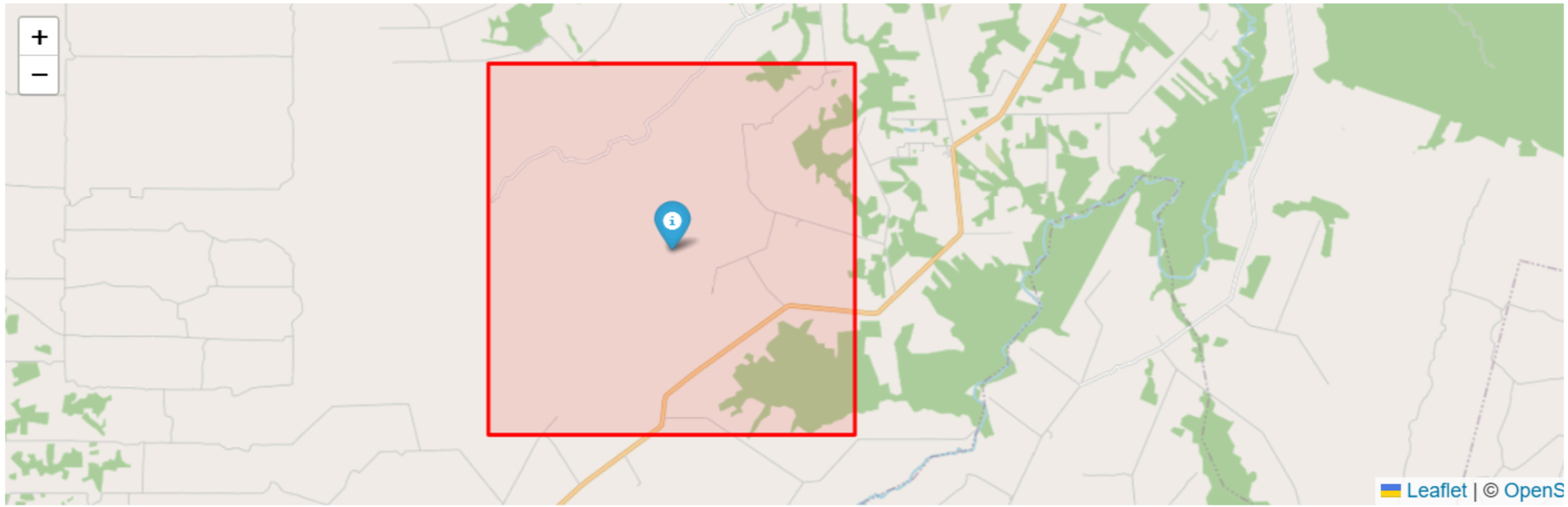
Run Analysis

EUDR Multi-Spectral Deforestation Engine

About the Platform & Methodology

Target: Amazon Rainforest (Deforestation)

Location & Targeting | Multi-Spectral Detection | Compliance Audit



Step 2: Spectral Analysis.

Visualizing the raw NDVI/NDWI layers to establish a baseline for agricultural health before applying compliance thresholds.

Deploy

Target: Amazon Rainforest (Deforestation)

EcoSentinel

Location & Targeting | Multi-Spectral Detection | Compliance Audit

Select Region & Date

Targeting Mode

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- Search Anywhere
- Draw Area

Choose Region

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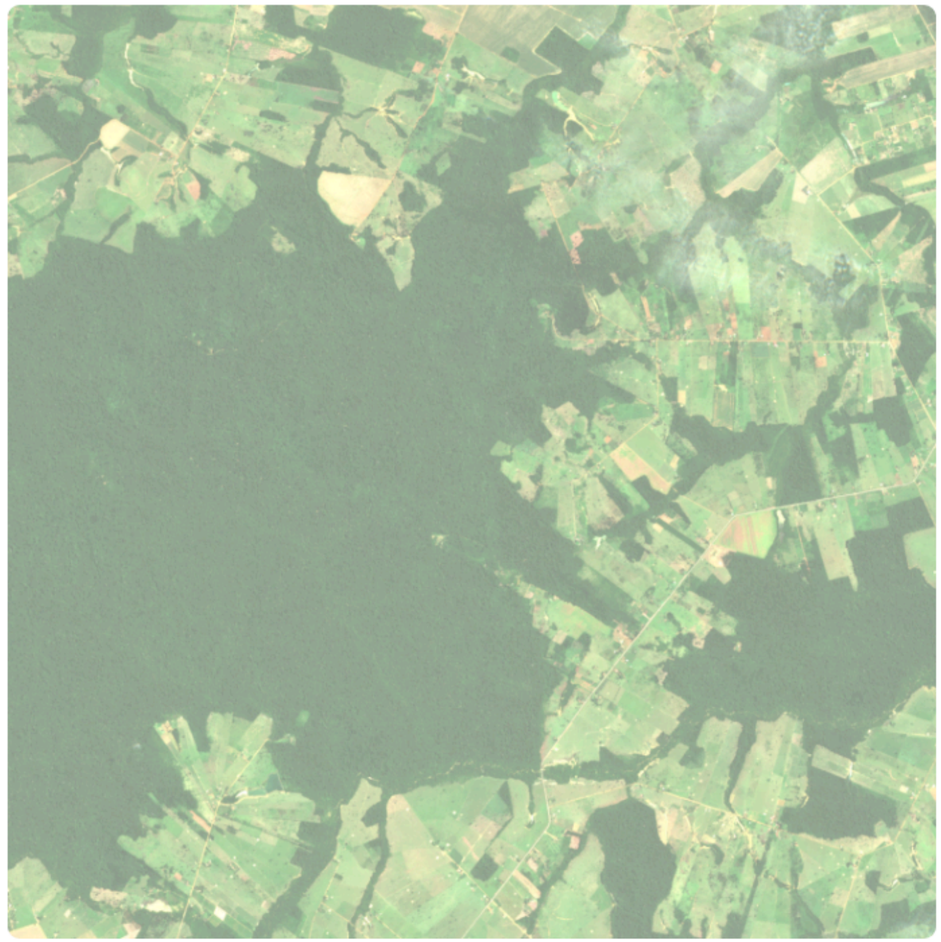
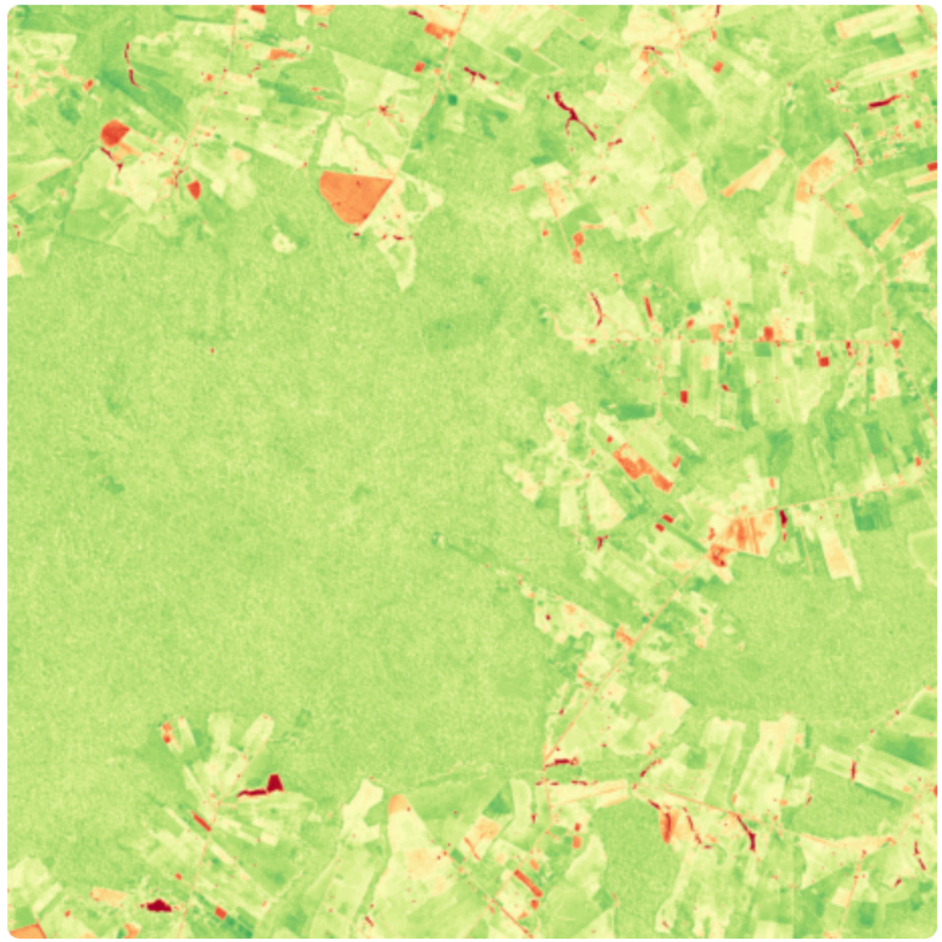
Run Analysis

Optical Reality



Sentinel-2 Composite (Visible Light)

Multi-Spectral Deforestation Detection



Hybrid Spectral Analysis (NDVI + NDWI)

Step 3: Multi-Class Smart Masking.

Applying the Decision Tree: Blue (Water), Grey (Urban), Red (Risk), and White (Safe) for pixel-perfect accuracy.

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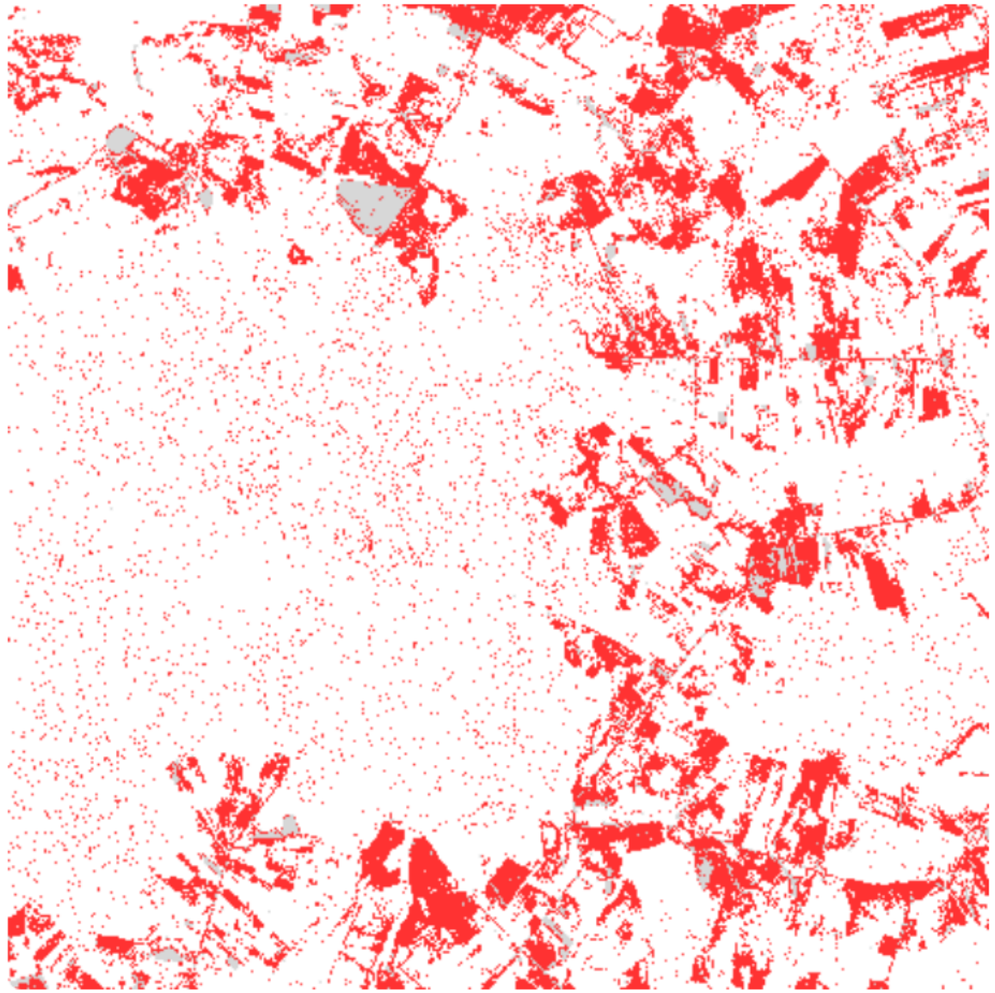
Run Analysis

Multi-Class Masking & Compliance Map



EUDR Classification Layer

Step 4: Due Diligence Summary.

A generated risk assessment explaining the why and how of the result, ready for banking or supply chain audits.

EcoSentinel

Select Region & Date

Targeting Mode

- (•) Use Presets
- ( ) Search Anywhere
- ( ) Draw Area

Choose Region

Amazon Rainforest (Defor…

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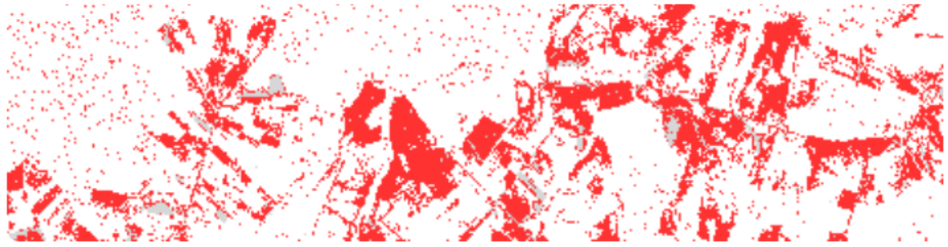
2025/03/01 – 2025/03/31

Run Analysis



EUDR Classification Layer

Executive Summary: 18.15% Risk (Compliant)

Risk Assessment:

The algorithm has identified that **18.15%** of the agricultural vegetation in this sector is exhibiting **moderate spectral variation** (typical for this biome). Vegetation gaps are within standard agricultural or forestry tolerance (thinning/spacing).

Algorithmic Methodology (Multi-Index Decision Tree):

- **BLUE (Water):** Masked via NDWI > 0 (Surface water bodies).
- **GREY (Urban/Barren):** Excluded where NDVI < 0.25 (Non-organic surfaces).
- **RED (Risk):** Vegetation with NDVI 0.25–0.45 (Sparse/Stressed signal).
- **WHITE (Safe):** Vegetation with NDVI > 0.45 (Dense chlorophyll signal).

---

*Data Validity Check: This analysis detected active vegetation cover of **98.37%**. (Areas with < 10% cover may indicate invalid seasonal windows or desert terrain).*

Step 5: Metadata Verification.

Ensuring data integrity by exposing the exact Sentinel-2 scene ID, cloud cover percentage, and acquisition timestamp.

Deploy

EcoSentinel

Select Region & Date

Targeting Mode

- Use Presets
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- Draw Area

Choose Region

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Search Window

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Run Analysis

EUDR Multi-Spectral Deforestation Engine

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Stress Area	Compliance	Cloud Cover
18.15%	COMPLIANT	2.3%


```
{
  "region_name" : "Amazon Rainforest (Deforestation)"
  "scene_id" : "Mosaic_Composite"
  "acquisition_date" : "2025-03-15T14:28:11.025000+00:00"
  "cloud_cover_avg" : 2.306674
  "platform" : "Sentinel-2C"
  "bbox" : [
    0 : -62.2
    1 : -9.6
    2 : -62.1
    3 : -9.5
  ]
}
```