WORLD RESOURCES INSTITUTE

Global Forest Watch GLAD Alerts

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February 23, 2019

Workshop to Share Experience, Knowledge and Challenges on Implementation of Tools for Combating and Preventing Illegal Logging Activities and Associated Trade

Santiago, Chile

About WRI

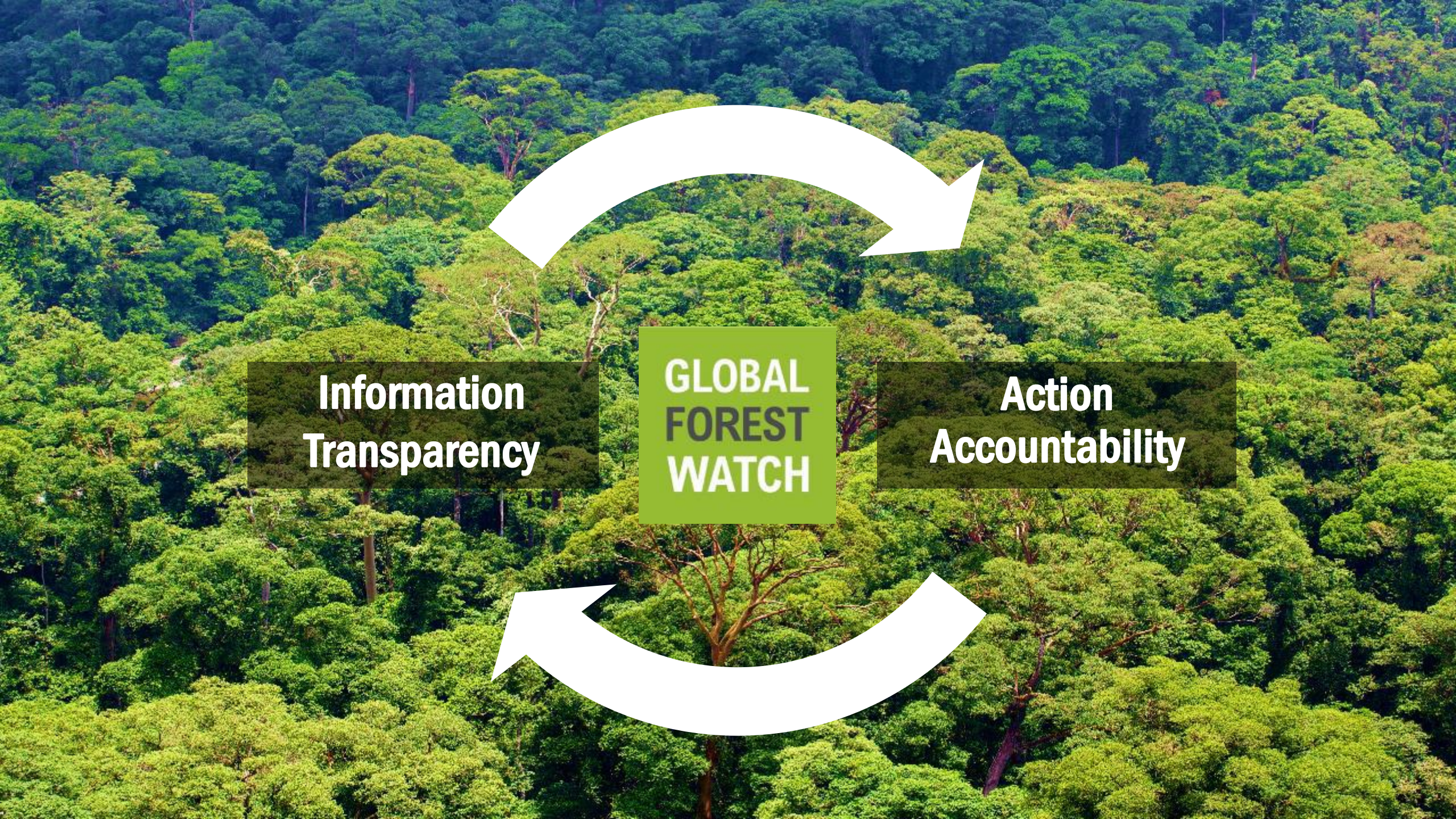
WORLD RESOURCES INSTITUTE

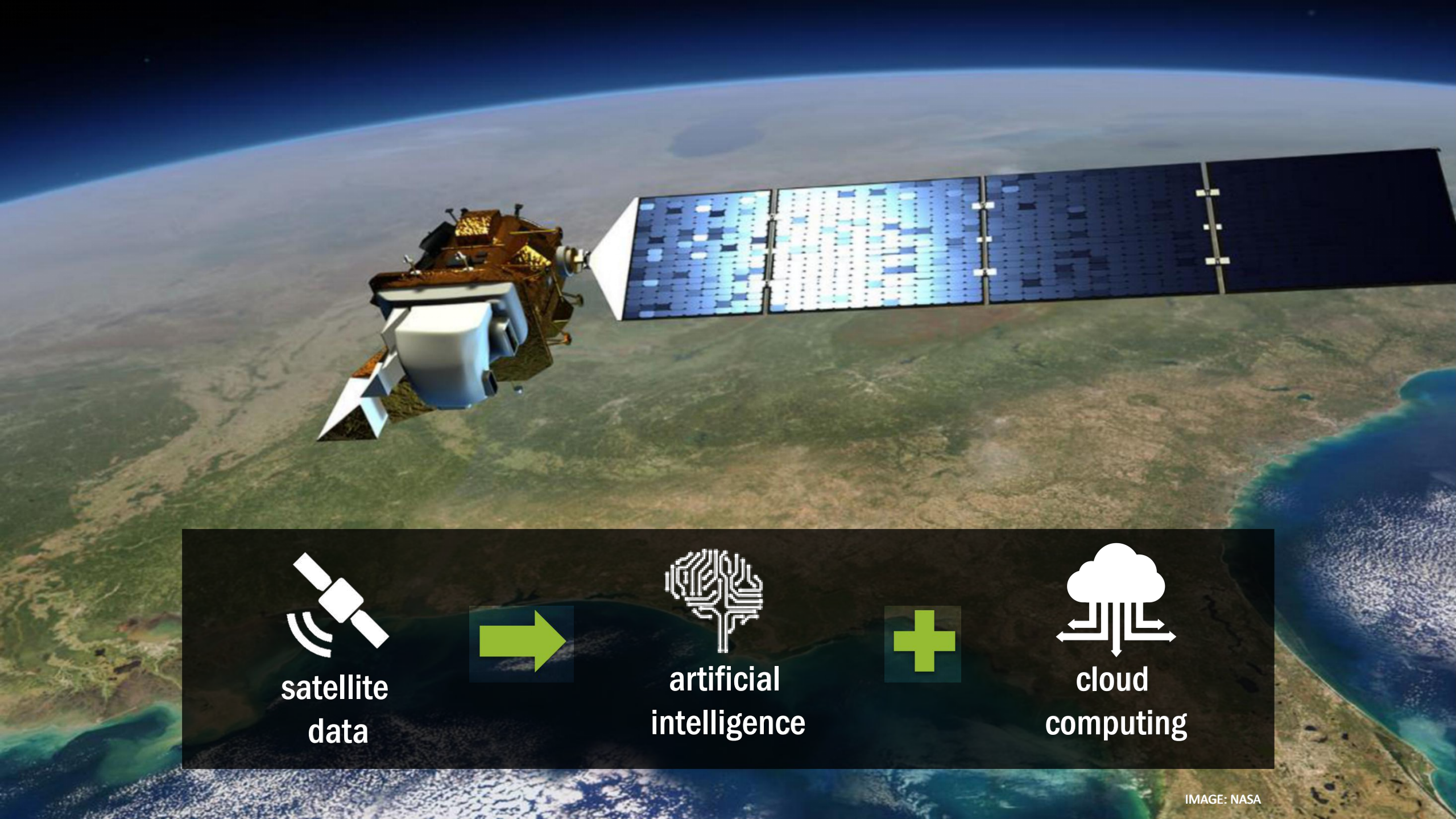
WRI'S MISSION | To move human society to live in ways that protect Earth's environment and its capacity to provide for the needs and aspirations of current and future generations.

WORLD RESOURCES INSTITUTE

WRI'S WORK | We work with governments, companies, and civil society to build solutions to urgent environmental and development challenges.

Global Forest Watch


Information
Transparency
GLOBAL
FOREST
WATCH
Action
Accountability


satellite data
artificial intelligence
cloud computing
IMAGE: NASA

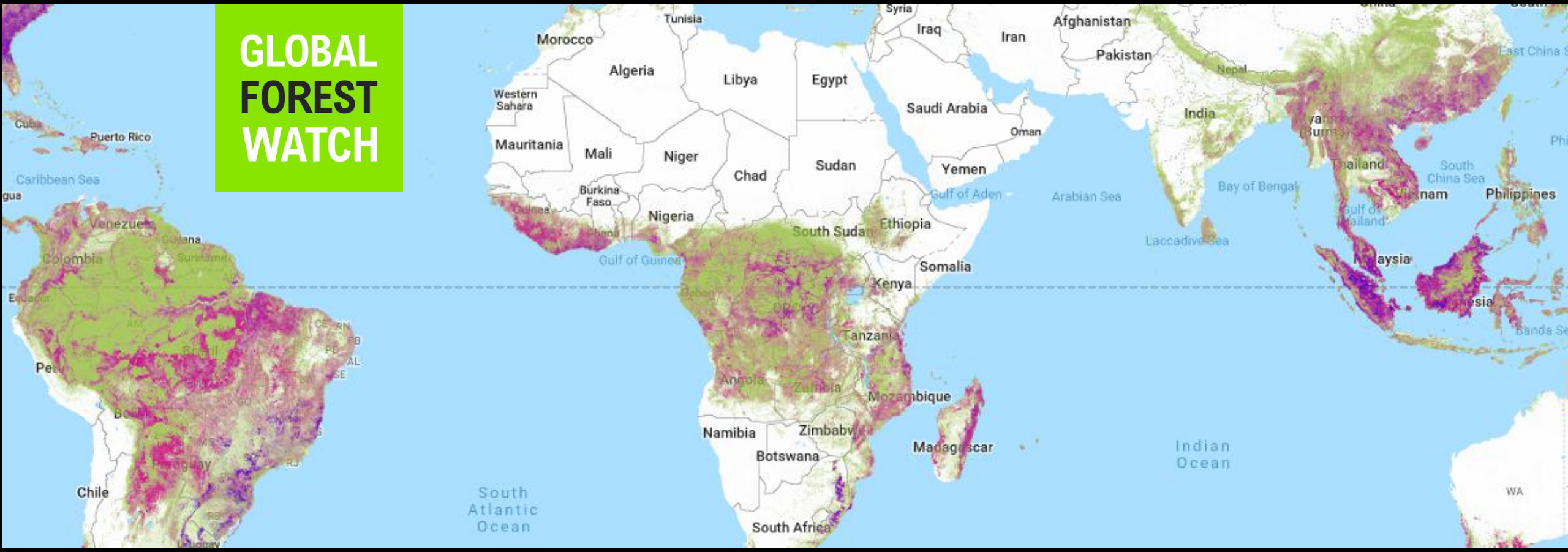
Data

Platform

Partners

Global Forest Watch

An online platform that provides data and tools for monitoring forests.



GLAD alerts

GLAD deforestation alerts

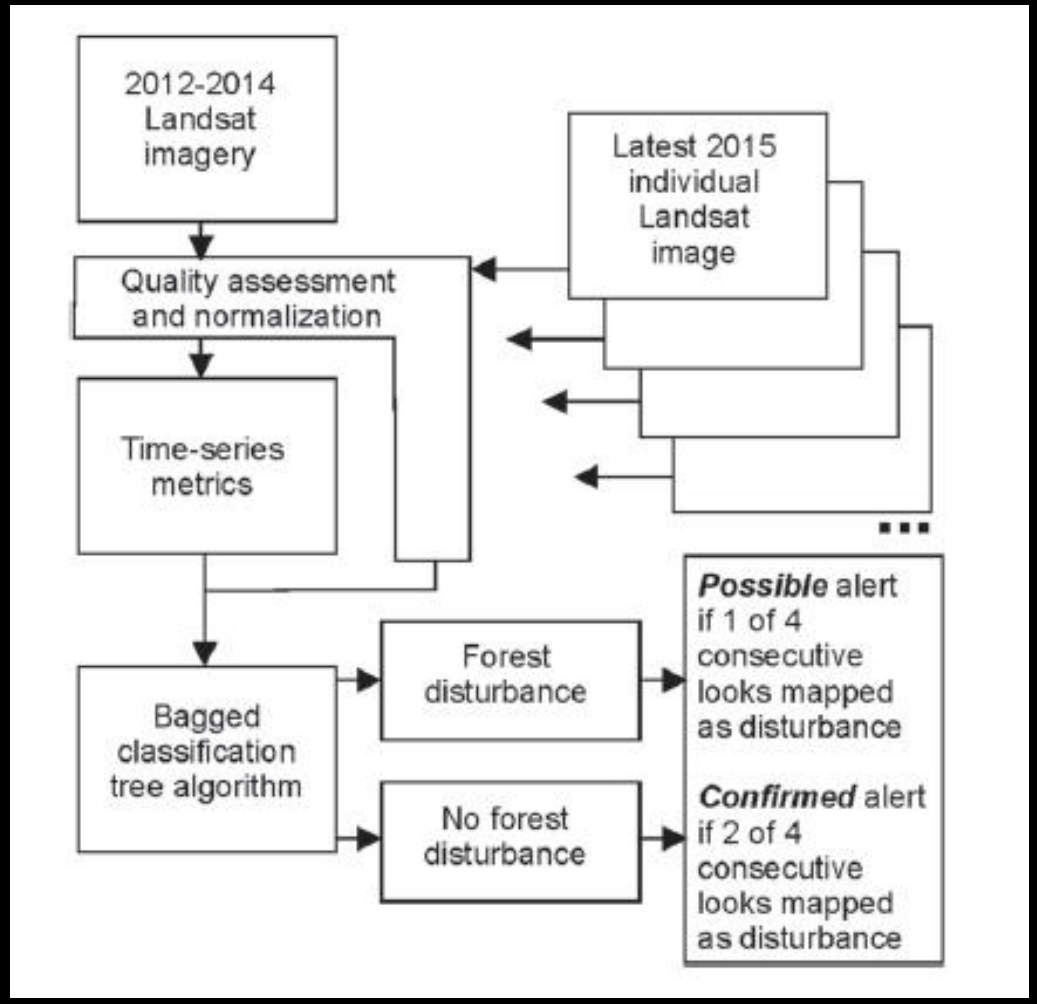
Weekly deforestation alerts from the University of Maryland (Global Land Analysis and Discovery (GLAD) Lab)

Characteristics:

- Updated weekly on GFW
- Temporal frequency depends on cloud coverage
- 30 meter spatial resolution
- Currently available for all the tropics

GLAD alerts

- "Forests" trees with at least 5 meters high and canopy density of at least 60%
- An alert is a pixel with at least 50% canopy cover loss
- Based on the interpretation of the latest cloud-free Landsat image
- Two types of alerts:
  - Confirmed (at least 2 cover los observations)
  - Un-confirmed



Hansen, M.C., A. Krylov, A. Tyukavina, P.V. Potapov, S. Turubanova, B. Zutta, S. Ifo, B. Margono, F. Stolle, and R. Moore. 2016. Humid tropical forest disturbance alerts using Landsat data. *Environmental Research Letters*, 11 (3).

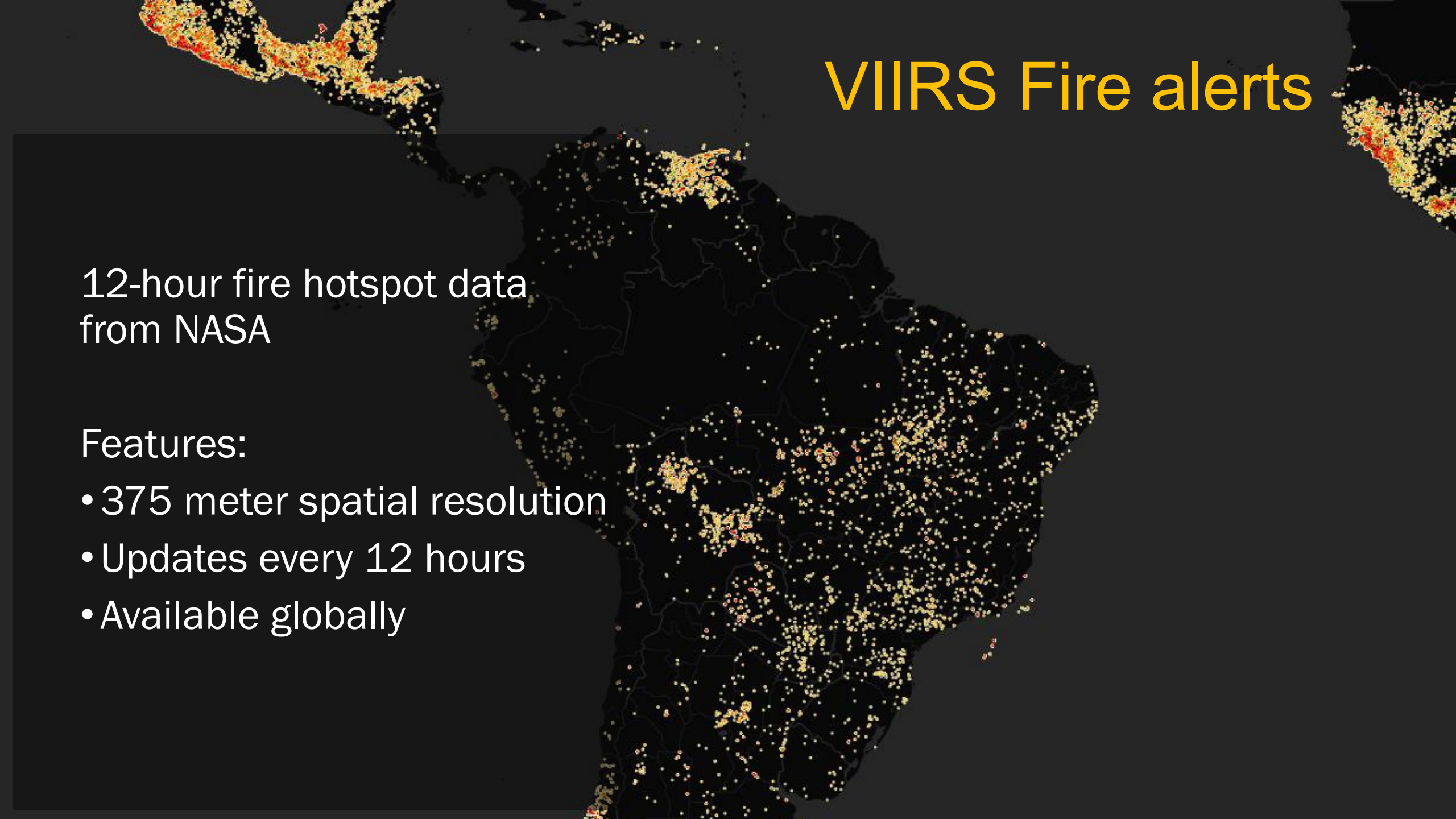
Limitations

- False positives (for all alerts): 13.5%
    - Most (9.5%) bordering areas where change occurred
- Falsos positives (confirmed alerts): 1%
- False negatives: 33%
- Alerts are conservative
- Cloud coverage is a significant limitation

Hansen, M.C., A. Krylov, A. Tyukavina, P.V. Potapov, S. Turubanova, B. Zutta, S. Ifo, B. Margono, F. Stolle, and R. Moore. 2016. Humid tropical forest disturbance alerts using Landsat data. *Environmental Research Letters*, 11 (3).


GLOBAL
FOREST
WATCH

VIIRS Fire alerts



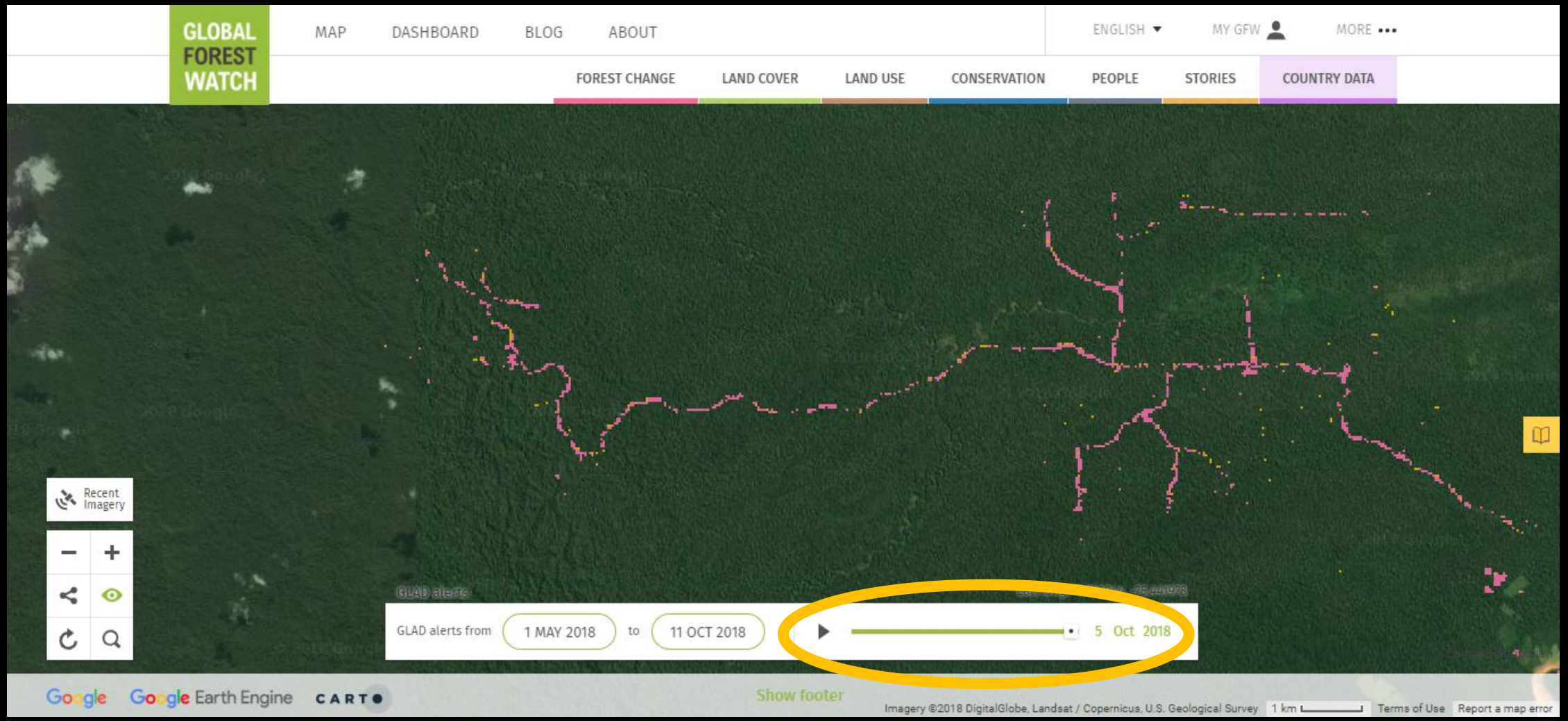
12-hour fire hotspot data from NASA

Features:

- 375 meter spatial resolution
- Updates every 12 hours
- Available globally

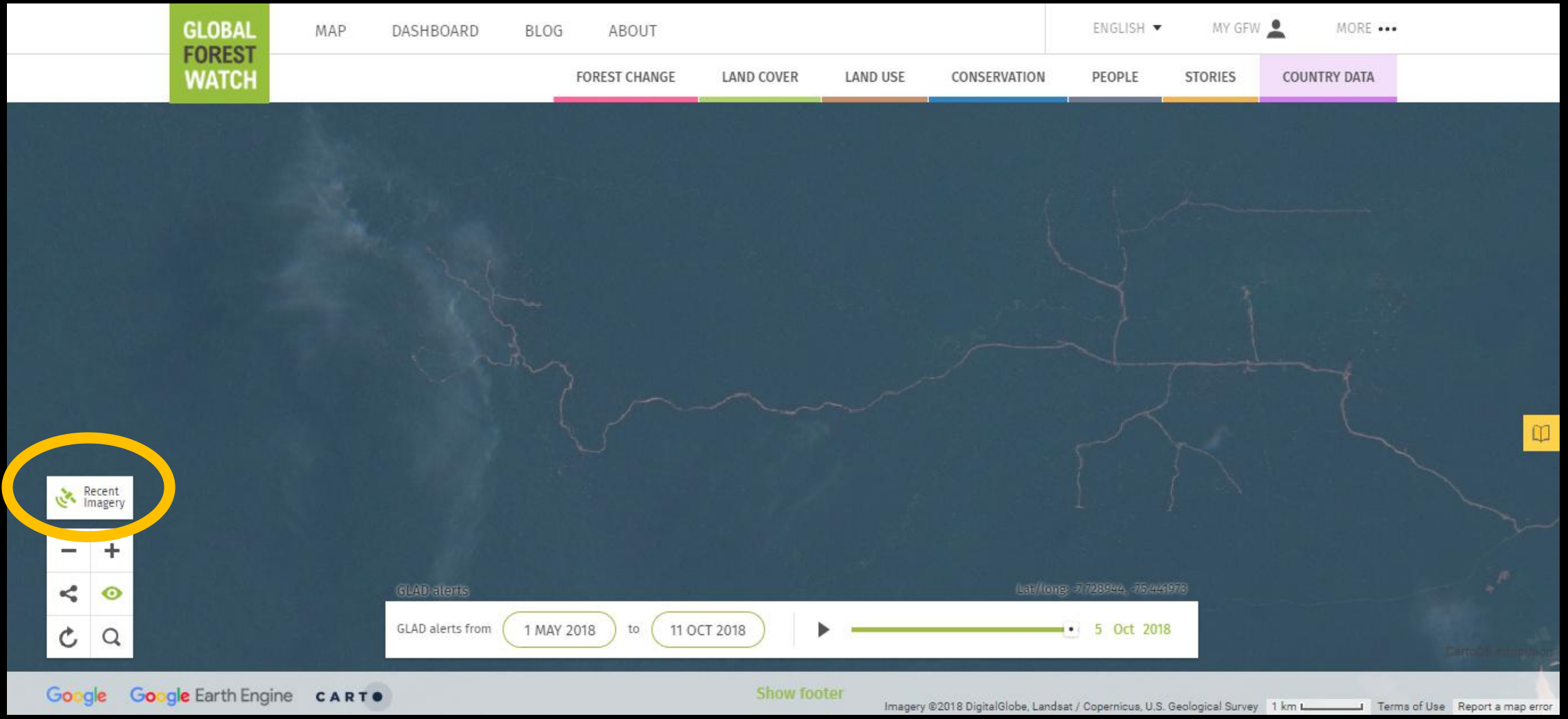
GLAD alerts availability on GFW

GFW Map



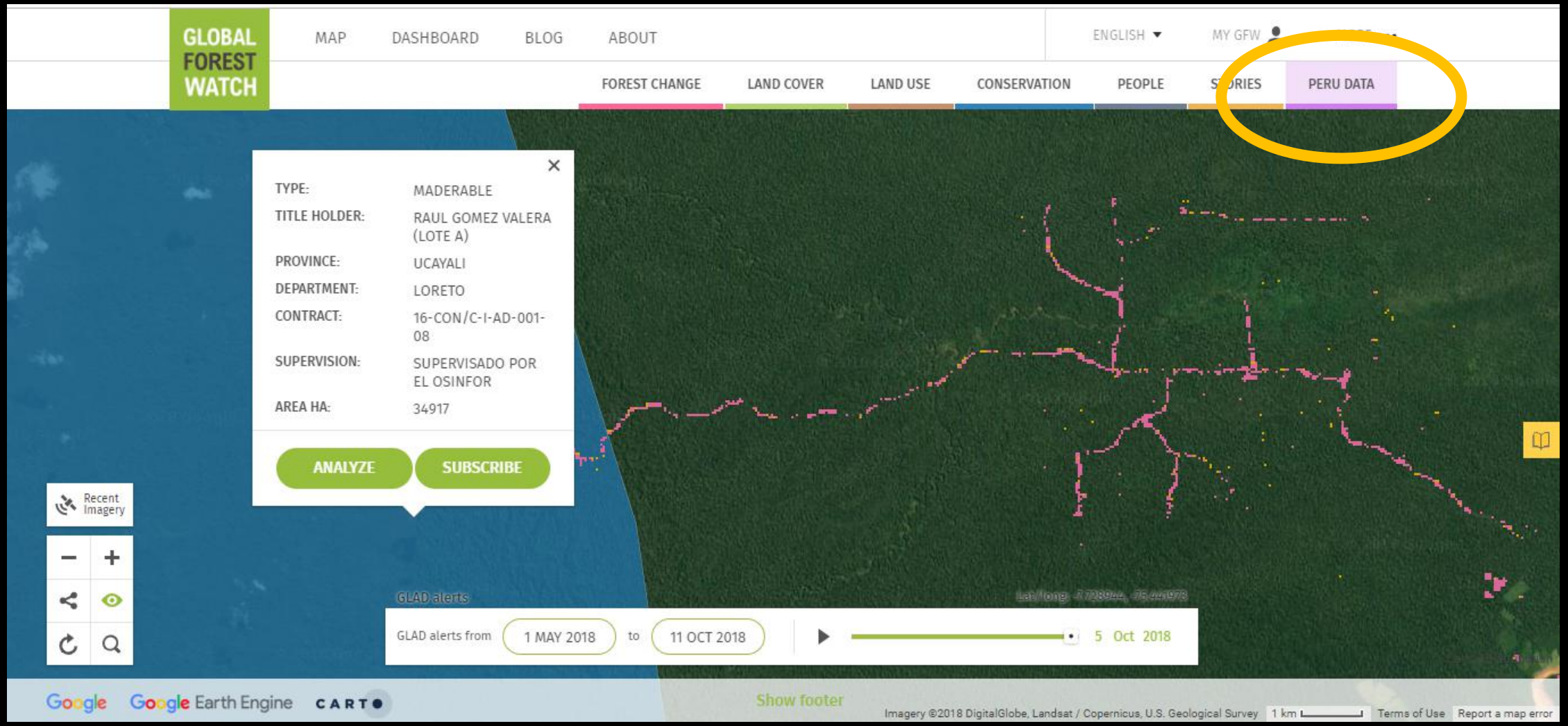
View how alerts have changed over time

GFW Map



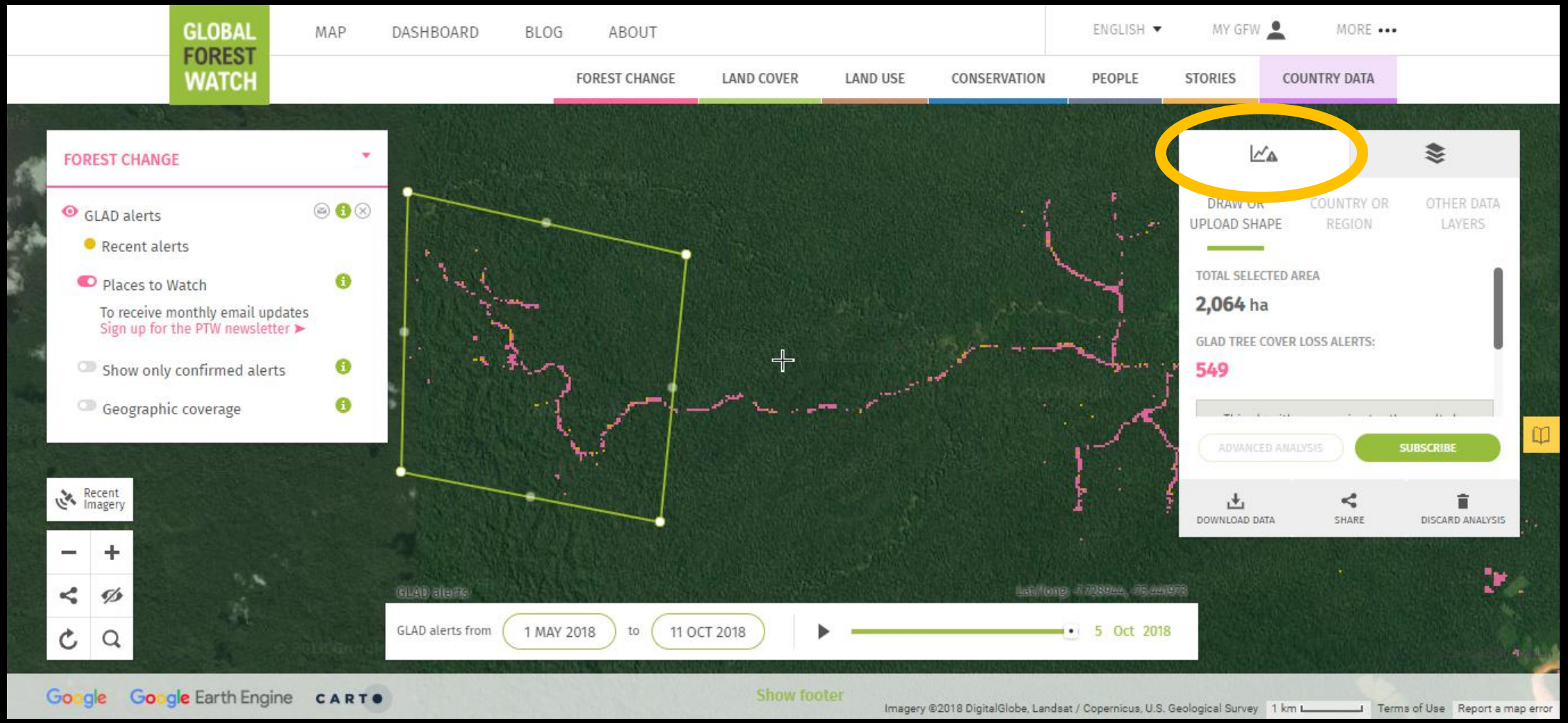
Confirm alerts with recent Sentinel-2 images

GFW Map



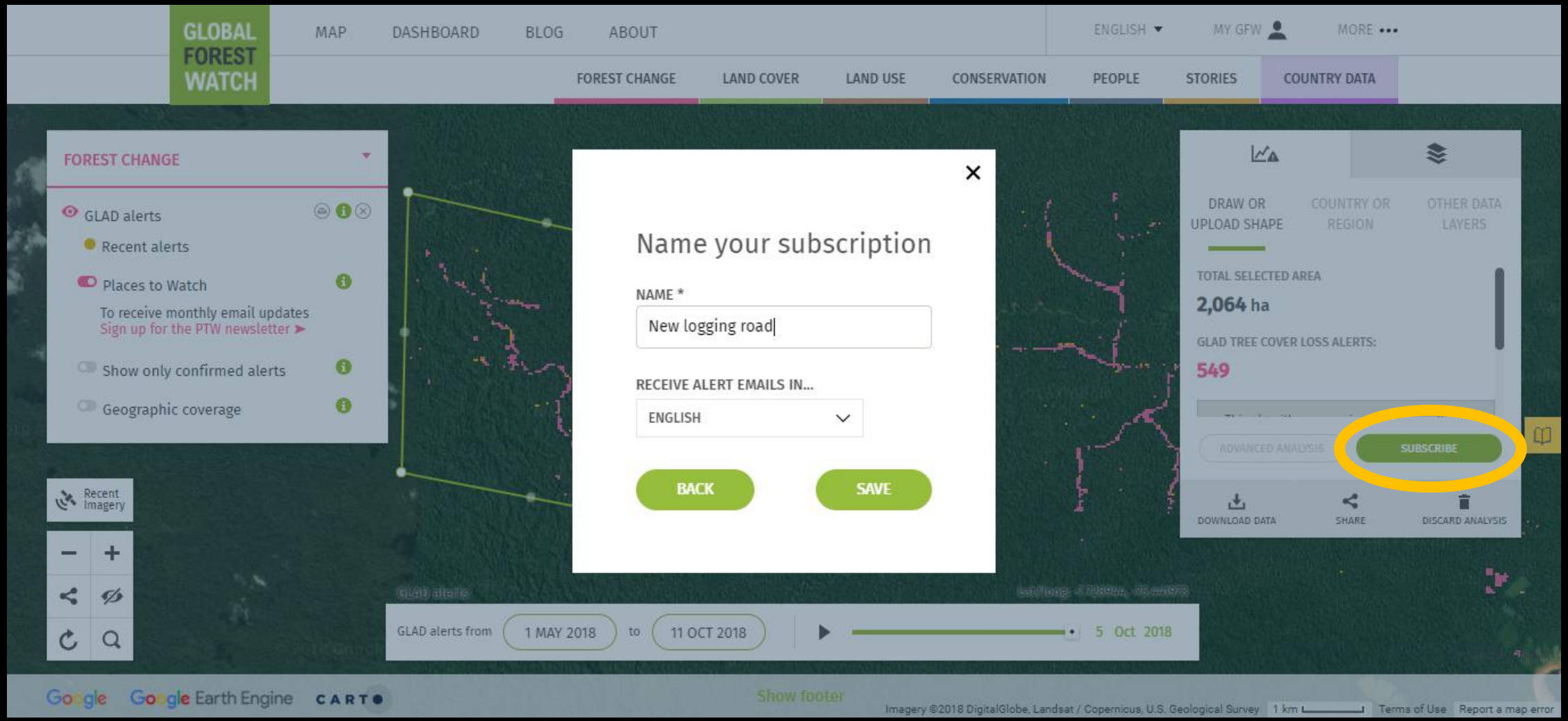
Compare alerts with other spatial information

GFW Map



Analyze alerts within an area of interest

GFW Map



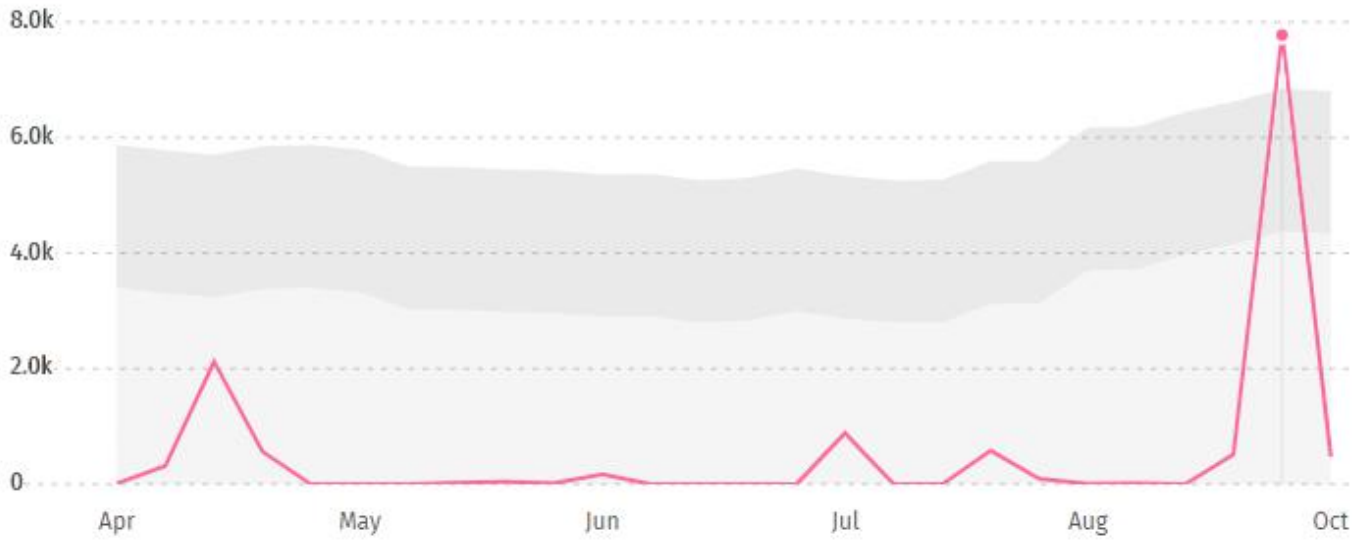
Subscribe to email notifications for new alerts

GFW Dashboards

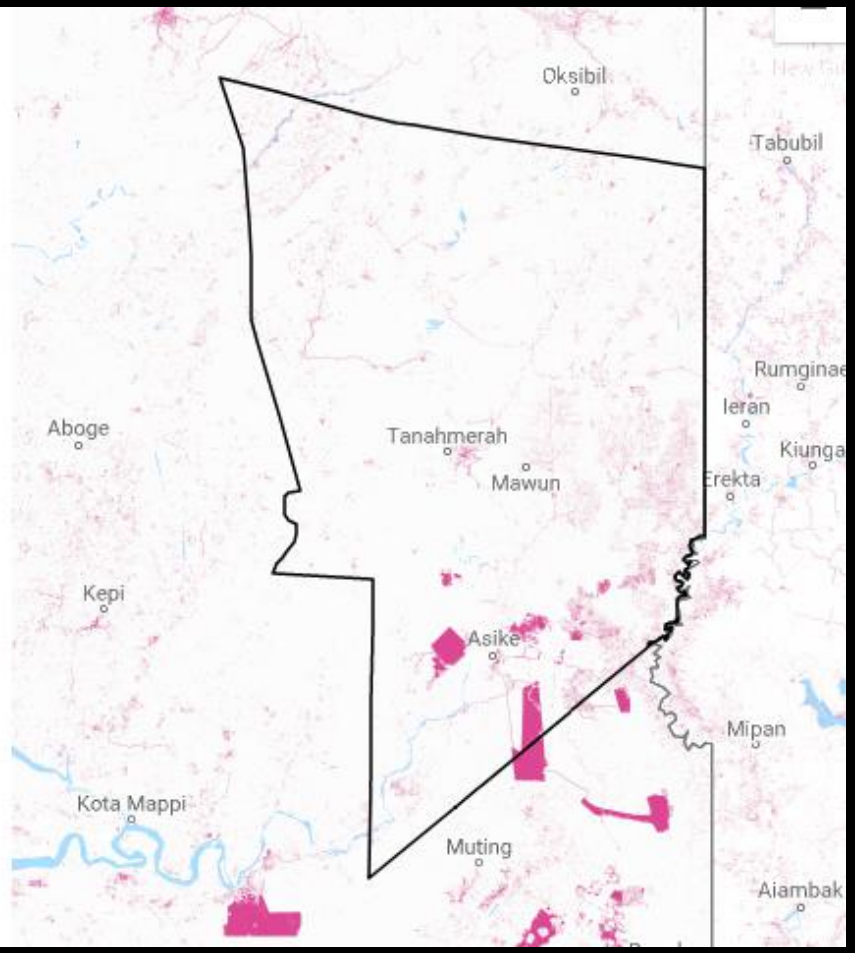
DEFORESTATION ALERTS IN BOVEN DIGOEL

SHOW ON MAP

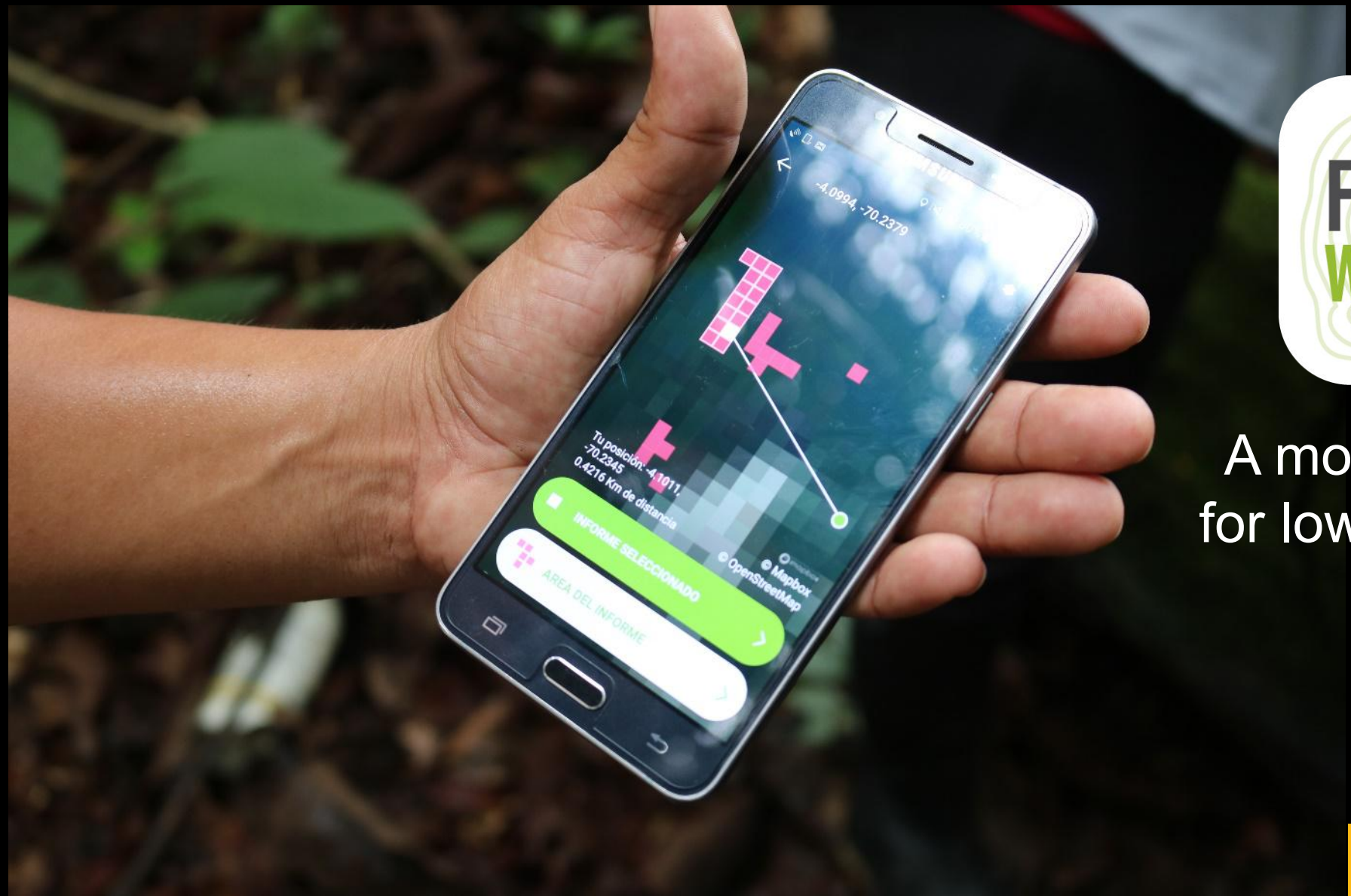
There were **7,776** GLAD alerts reported in the week of the **24th of September 2018**. This was **unusually high** compared to the same week in previous years.



these estimates do not take tree cover gain into account



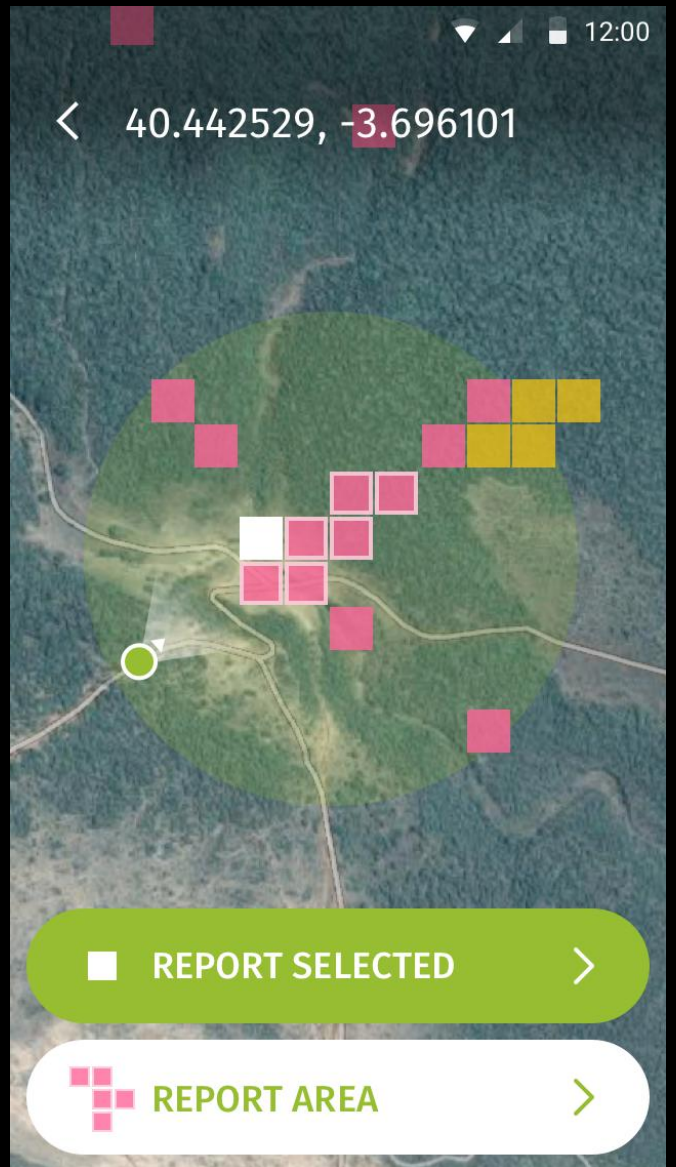
Forest Watcher



FOREST WATCHER

A mobile solution
for low connectivity

Forest Watcher



App features

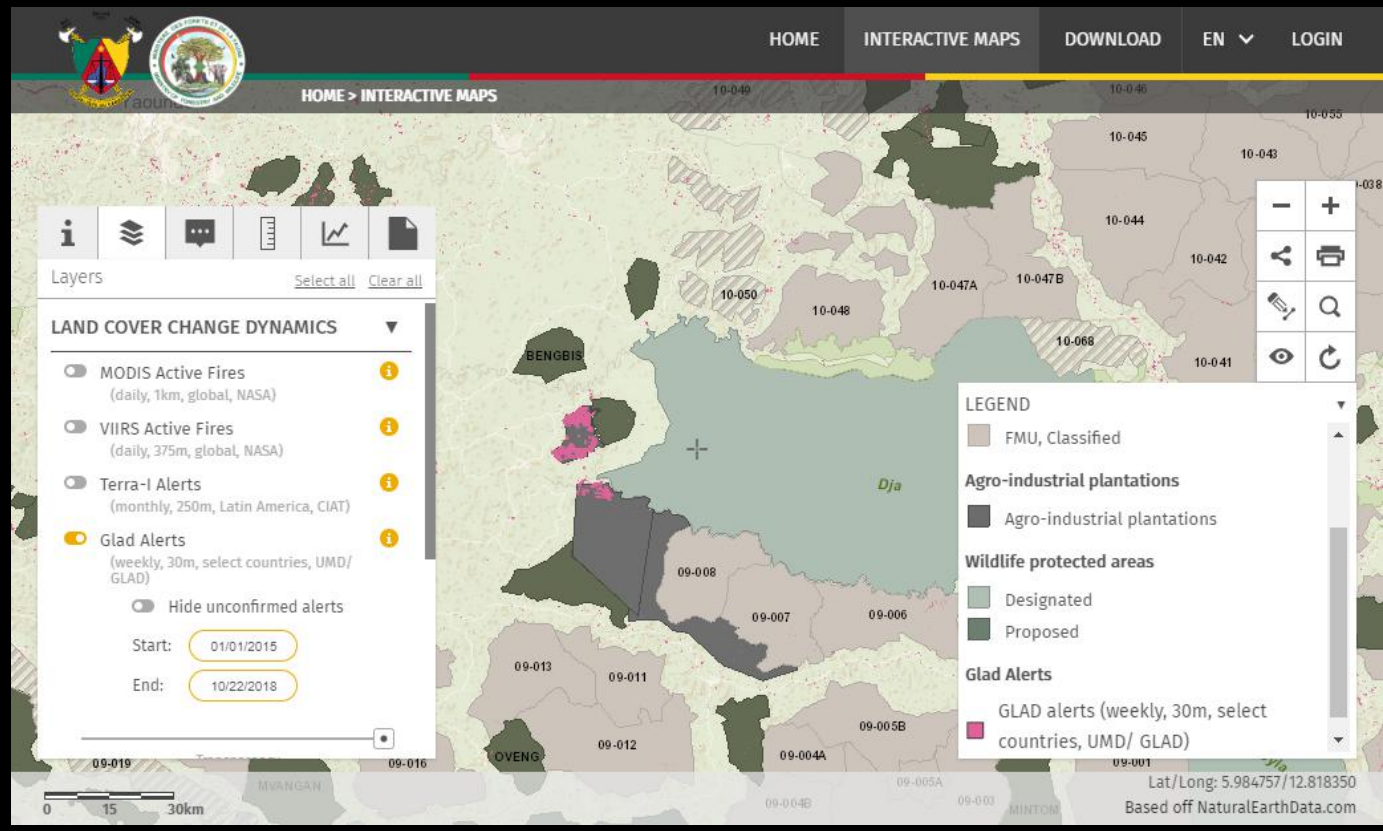
- Monitor an area of interest
- Download GLAD and fire alerts to use offline
- Navigate to areas of recent change
- Collect information via customizable forms

Forest Watcher is…

- Free to use and open source
- Available on Android and iOS
- Available in English, French, Spanish, Portuguese, and Bahasa Indonesian

Other ways to access alerts

- Download alerts for an area of interest as a csv
- Access analyses via Global Forest Watch's API
- Build custom web applications that incorporate GLAD alerts through the MapBuilder platform template



User cases

Uses

Awareness raising

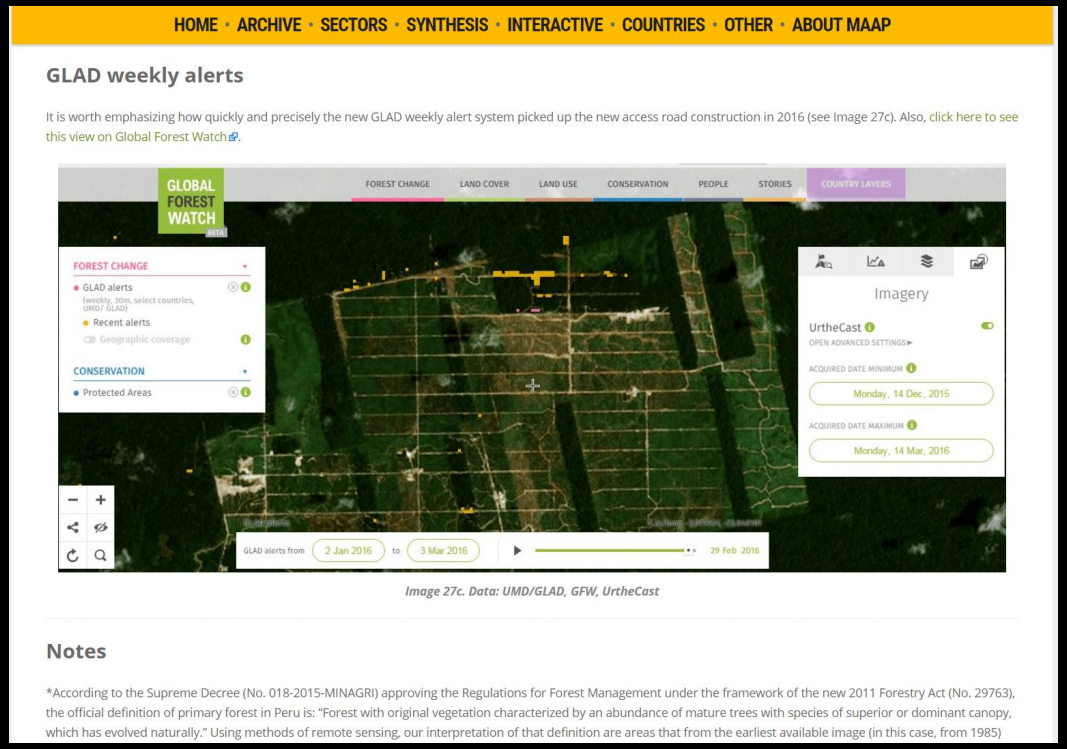
Empowerment

PES & to pay ilegal logging fines

Protected areas management

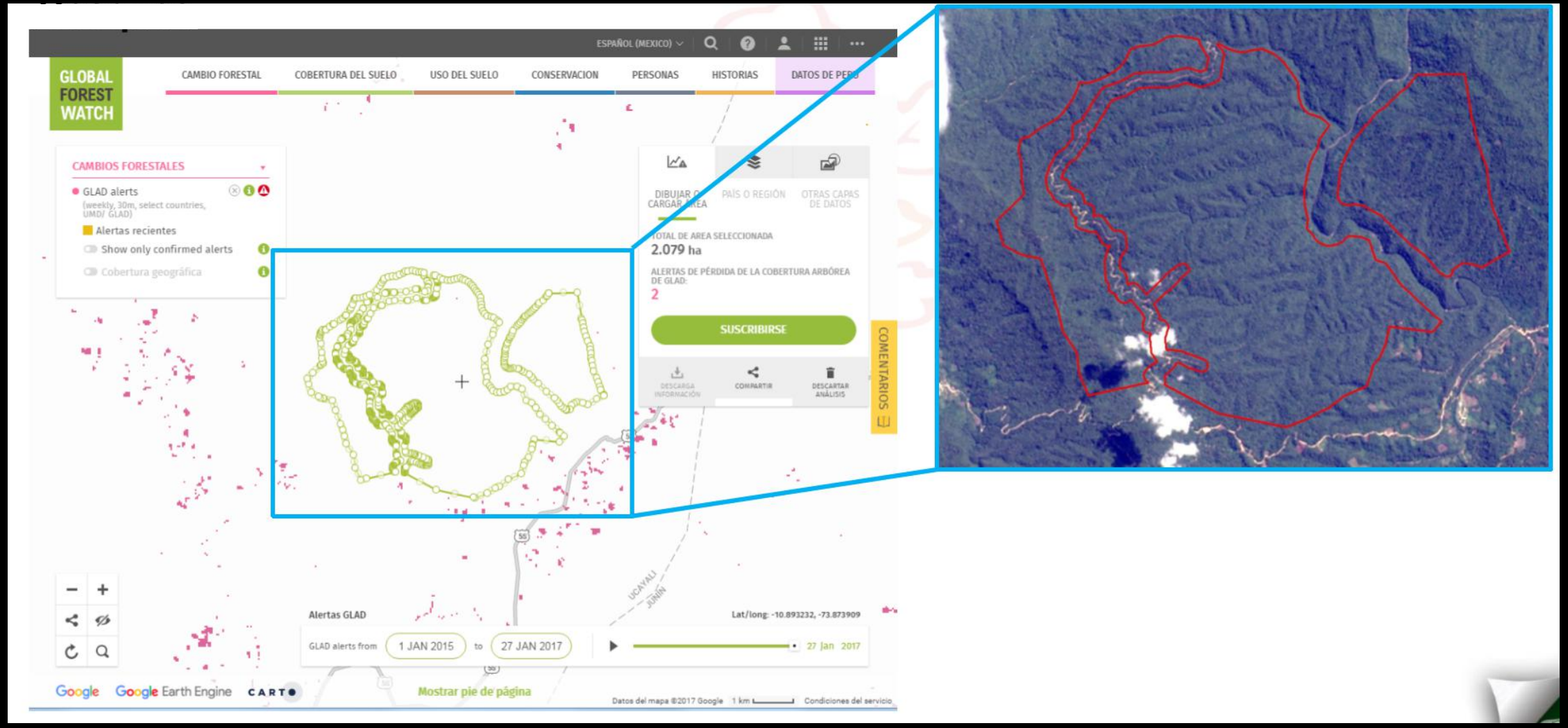
Law enforcement

Awareness raising

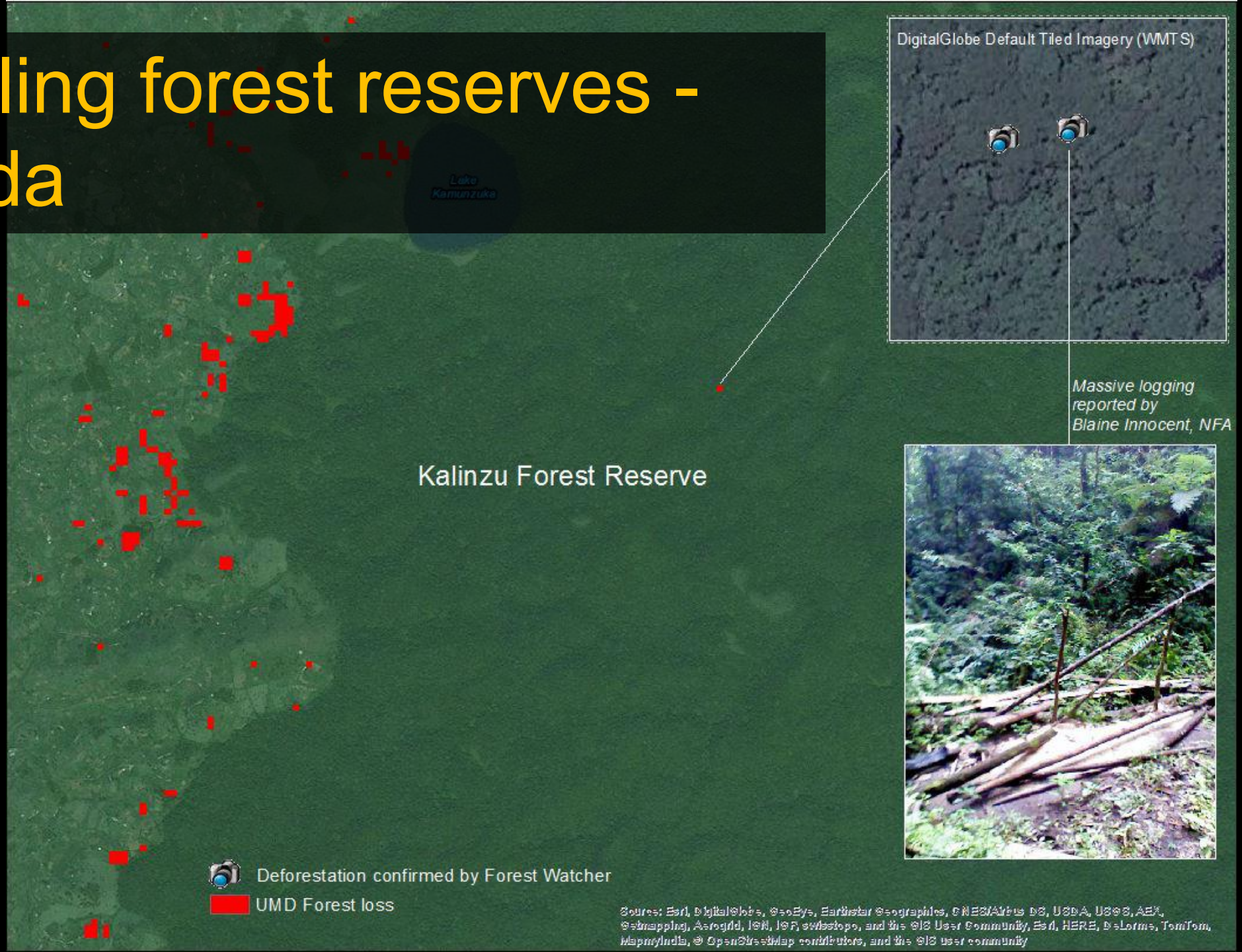


Empowering indigenous peoples

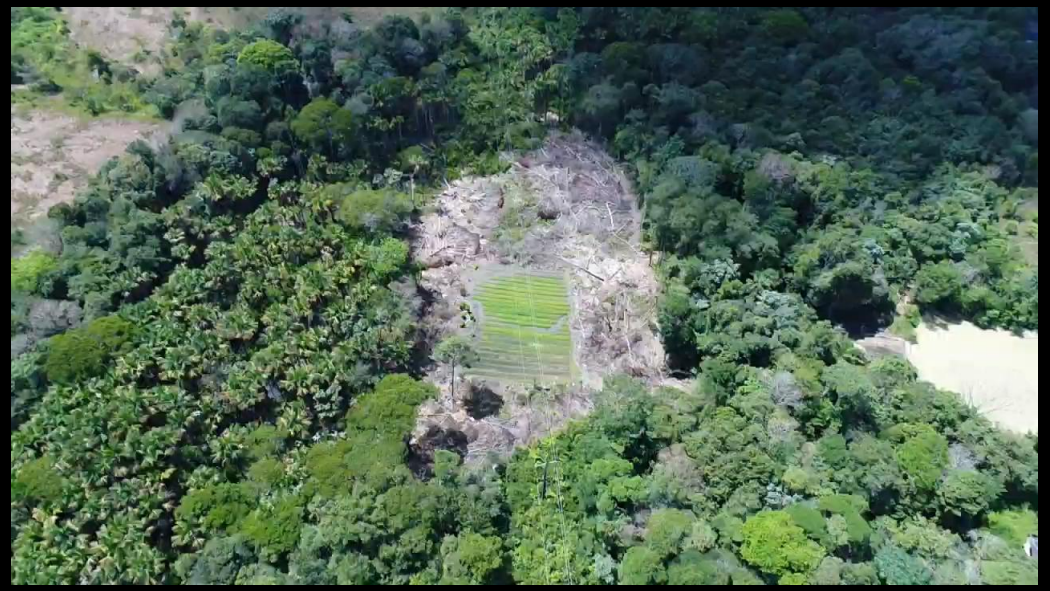
PES & payment of fines for illegal logging



Patrolling forest reserves - Uganda



Law enforcement - Brazil



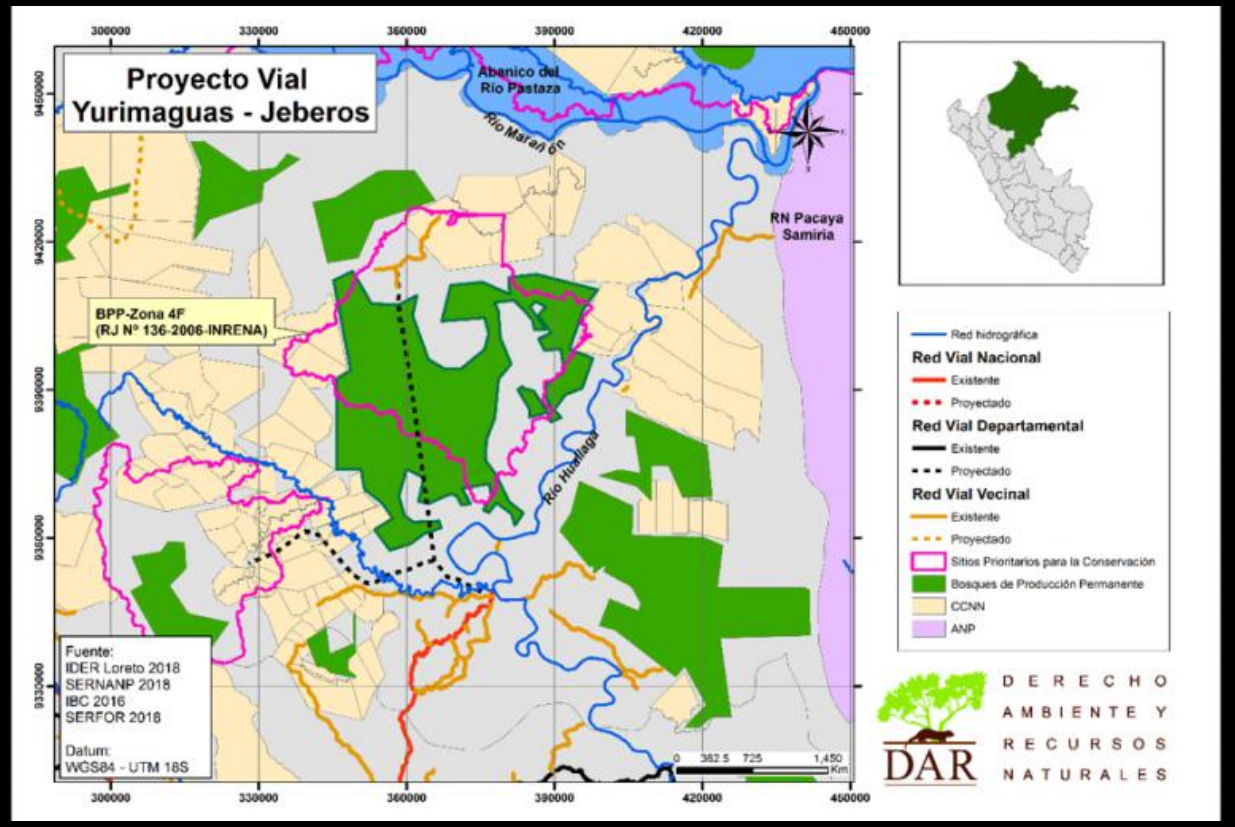
Lessons

Lessons

- Satellite monitoring is only the first step

Technical limitations

- Availability
- Accessibility
- Technical capacity
- Contextual data and analysis



Governance limitations

- *“We have near-real time deforestation alerts, but un-real capacity to respond.”*

Luigi R. Vargas

Natural Resources Director, 2018

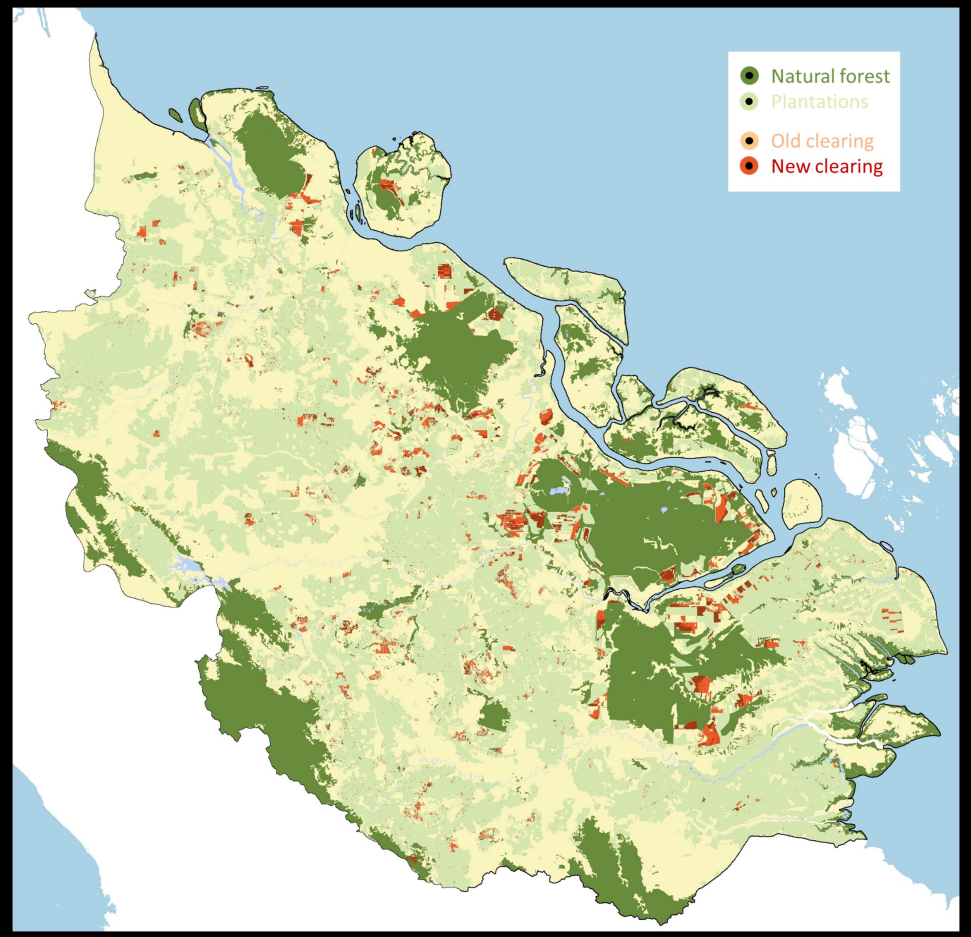
Regional Government of Ucayali, Peru

- Capacity
- Corruption
- Inter-agency coordination

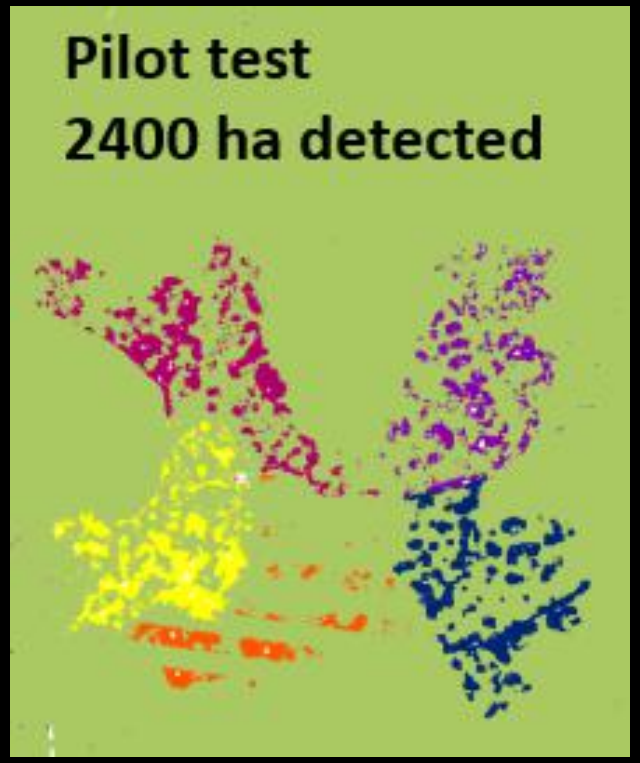
Overcoming technical limitations

Incorporation of new satellite data

- Incorporation of Sentinel-2 images into GLAD alerts to increase resolution and frequency
- Pilot test of Sentinel-1 radar data for alerts in Indonesia and Malaysia to overcome cloud cover



Pilot test to identify selective logging



Collaboration with Sheffield University researchers to pair satellite images with field data on selective logging

Enhanced identification of priority alerts

- Developing methods to identify priority alerts for particular users, e.g. based on cluster size, proximity to oil palm
- Machine learning to automate detection of drivers

Improve access to contextual information

- Incorporating new sources of satellite imagery for verification of alerts
- Expanding GFW's available data on concessions, land rights

Creating spaces to share lessons learned

- WRI convening the “Early Warning Working Group”
- Hosted a forum in July to share experiences, reflect on limitations, and lessons learned
- Increased emphasis on highlighting real examples of use

Thank you!

www.globalforestwatch.org

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