

Oct 19 | Forest Legality Week 2022



SERVIR-Perspective

Updates on early warning systems for monitoring forests

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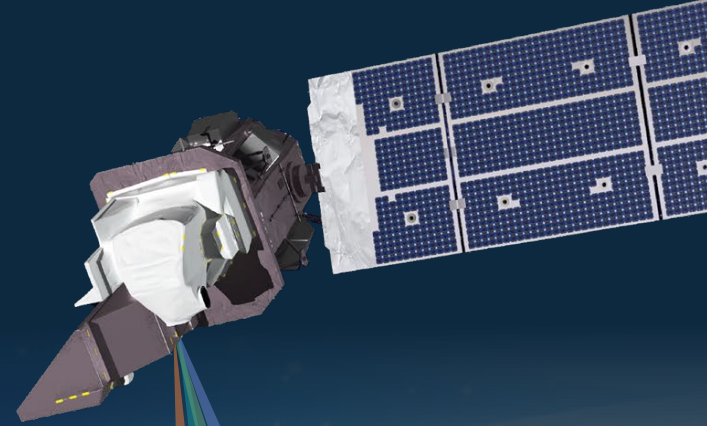


CONNECTING SPACE TO VILLAGE

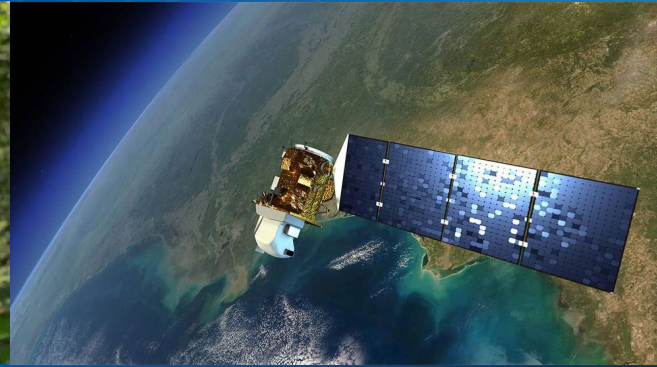
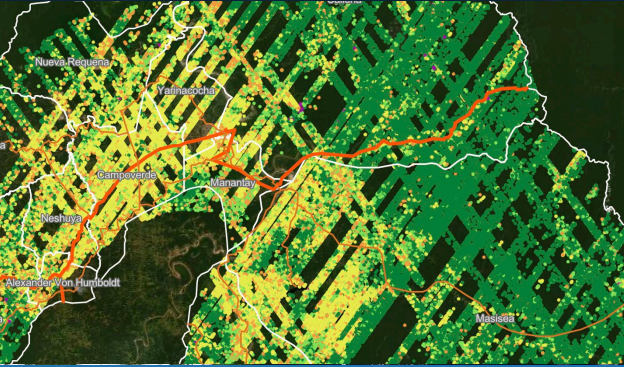


SERVIR is a joint initiative of NASA, USAID, and leading geospatial organizations in Asia, Africa, and Latin America that partners with countries and organizations to address challenges in climate change, food security, water and related disasters, land use, and air quality.

Using satellite data and geospatial technology, **SERVIR** co-develops innovative solutions through a network of regional hubs to improve resilience and sustainable resource management at local, national and regional scales.



Background



Currently SERVIR uses a number of state-of-the-art land cover change algorithms to map land cover, land cover change and inform alert deforestation systems.

SERVIR Global Land Cover Change Inter-comparison Project



Motivation & Need:

- Multiple time series algorithms to map deforestation & degradation
- What guidance to provide to countries?

Objectives:

- Understand trade-offs about using a given change detection algorithm to map deforestation and forest degradation
- Generate practical material on how to run and tune different algorithms in different ecosystems

Implementation

Bi-weekly meetings

Exploring Algorithms of Degradation in various terrains

- **LandTrendr** (Robert Kennedy)
- **CCDC-SMA** (Shijuan / Pontus Olofsson)
- **MTDD / Random Forest** (Yunuen Reygadas/Stephanie Spera)

Participants:

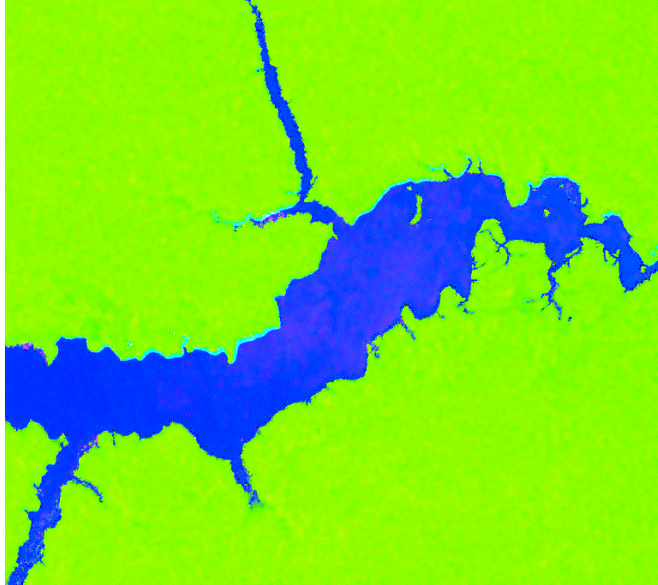
- SERVIR-SCO
- HKH
- MKG
- E&SA
- WA
- AMZ
- SERVIR AST



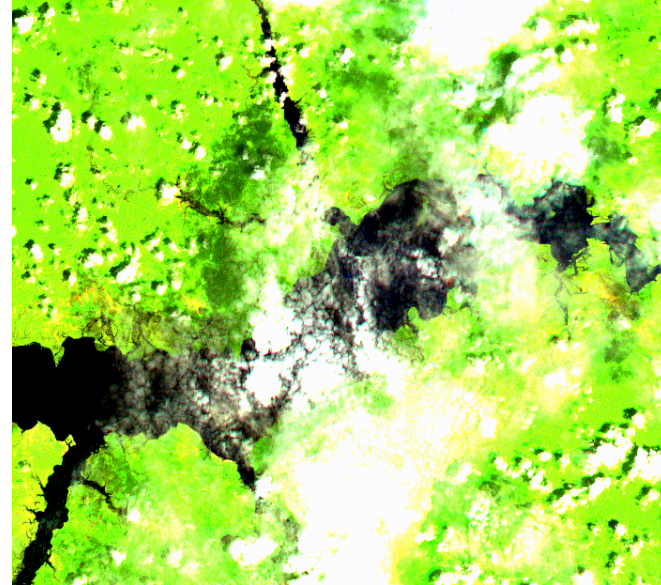
Outcomes:

- Global intercomparison scientific paper
- Handouts - one pagers
- Enhanced global network capacity

Multiple algorithms relying on satellite optical data



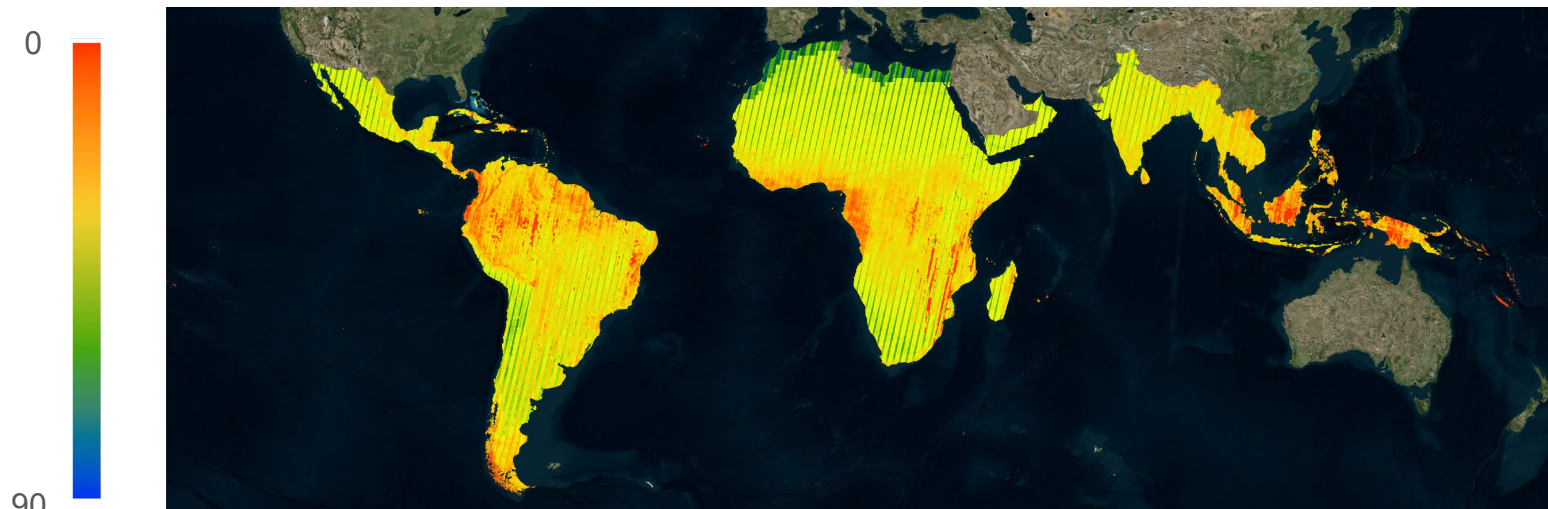
Sentinel-1 (2021-01-01 - 2021-07-30)



Sentinel-2 (2021-01-01 - 2021-07-30)

Where are data gaps?

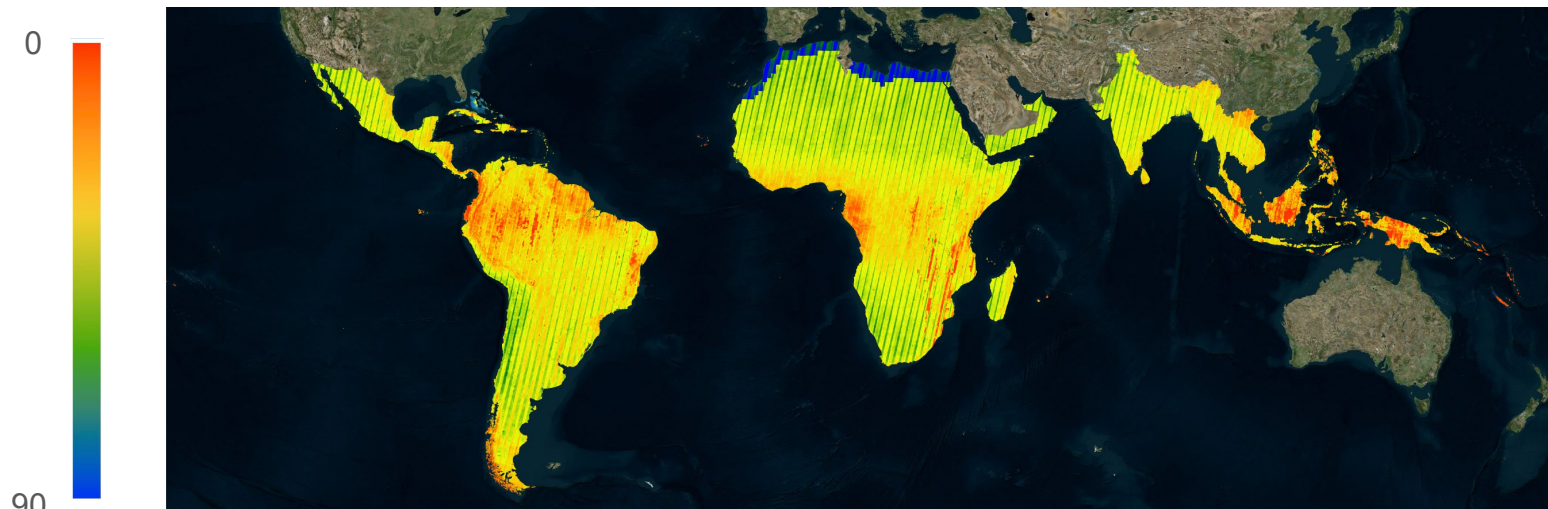
Year 2017



Number of cloud free observations from Landsat 7 and 8 and Sentinel-2 over the tropics.

Where are data gaps?

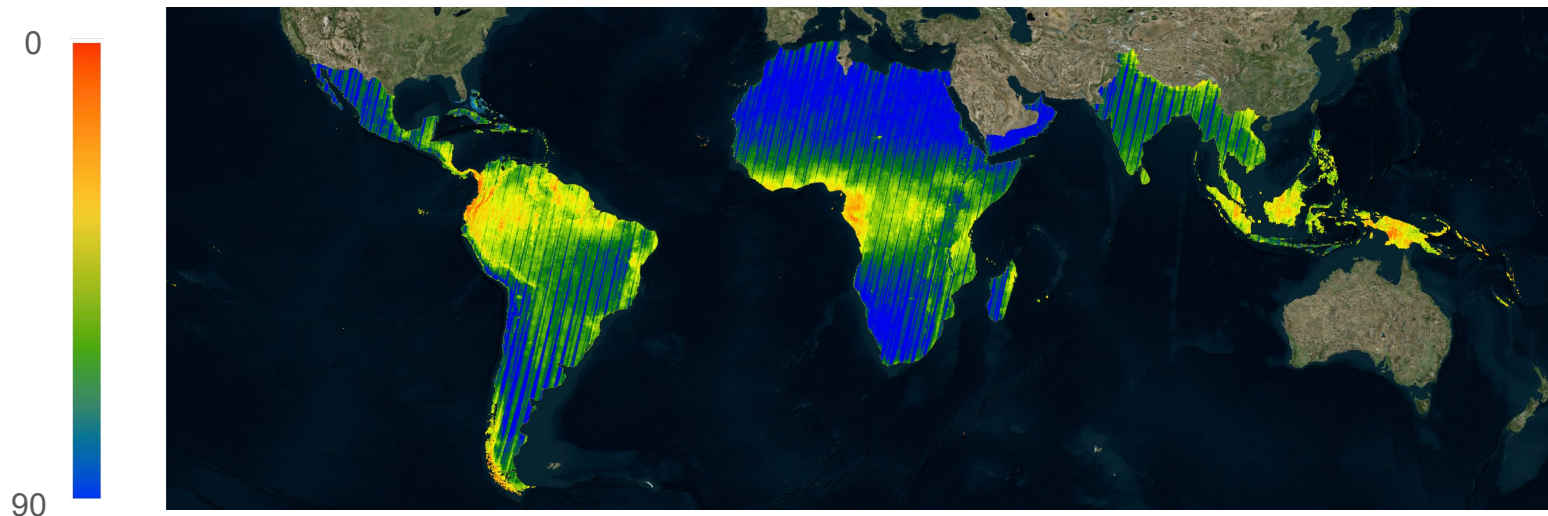
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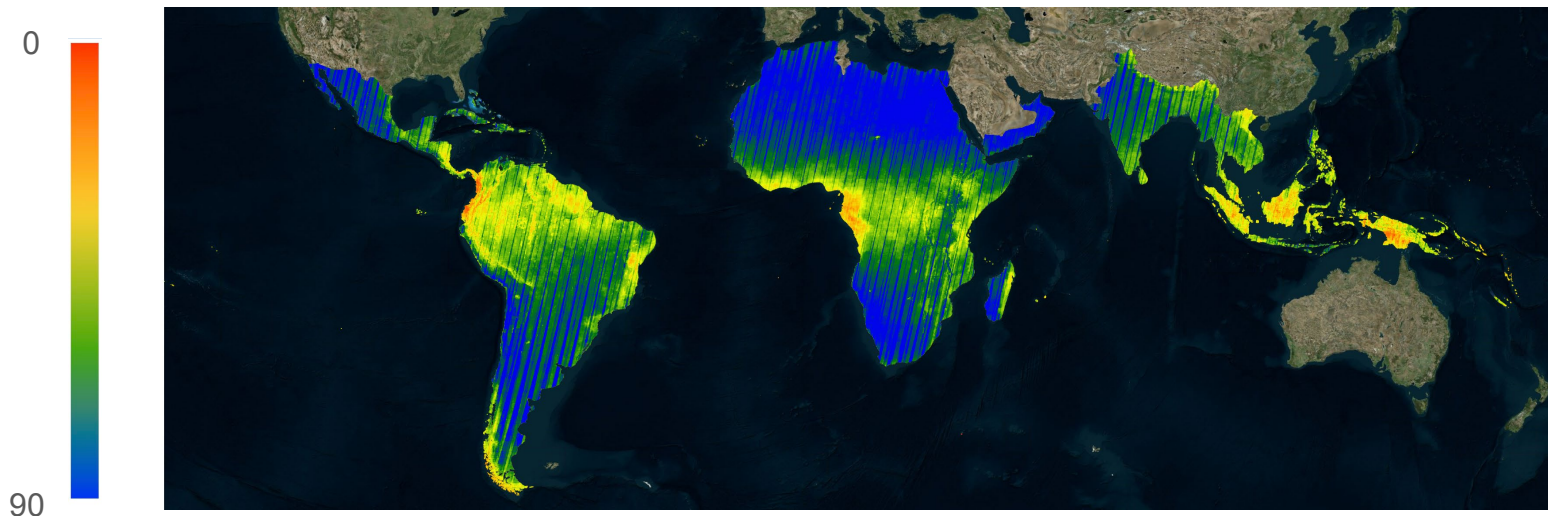
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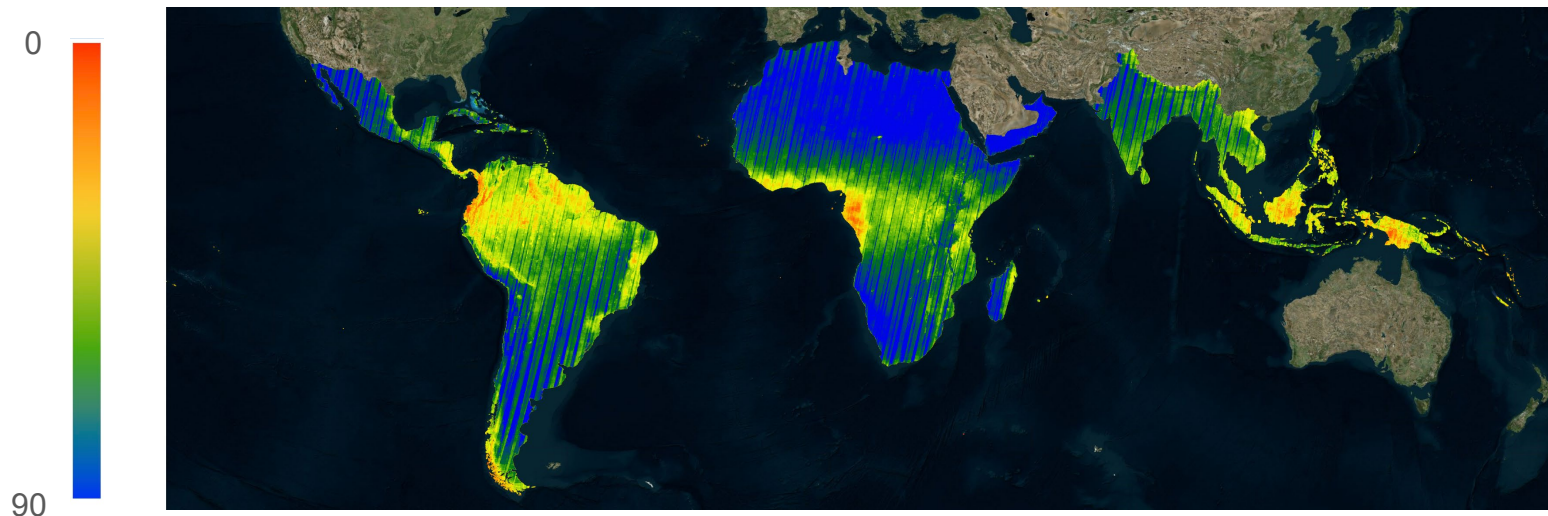
Year 2020



Number of cloud free observations from Landsat 7 and 8 and Sentinel-2 over the tropics.

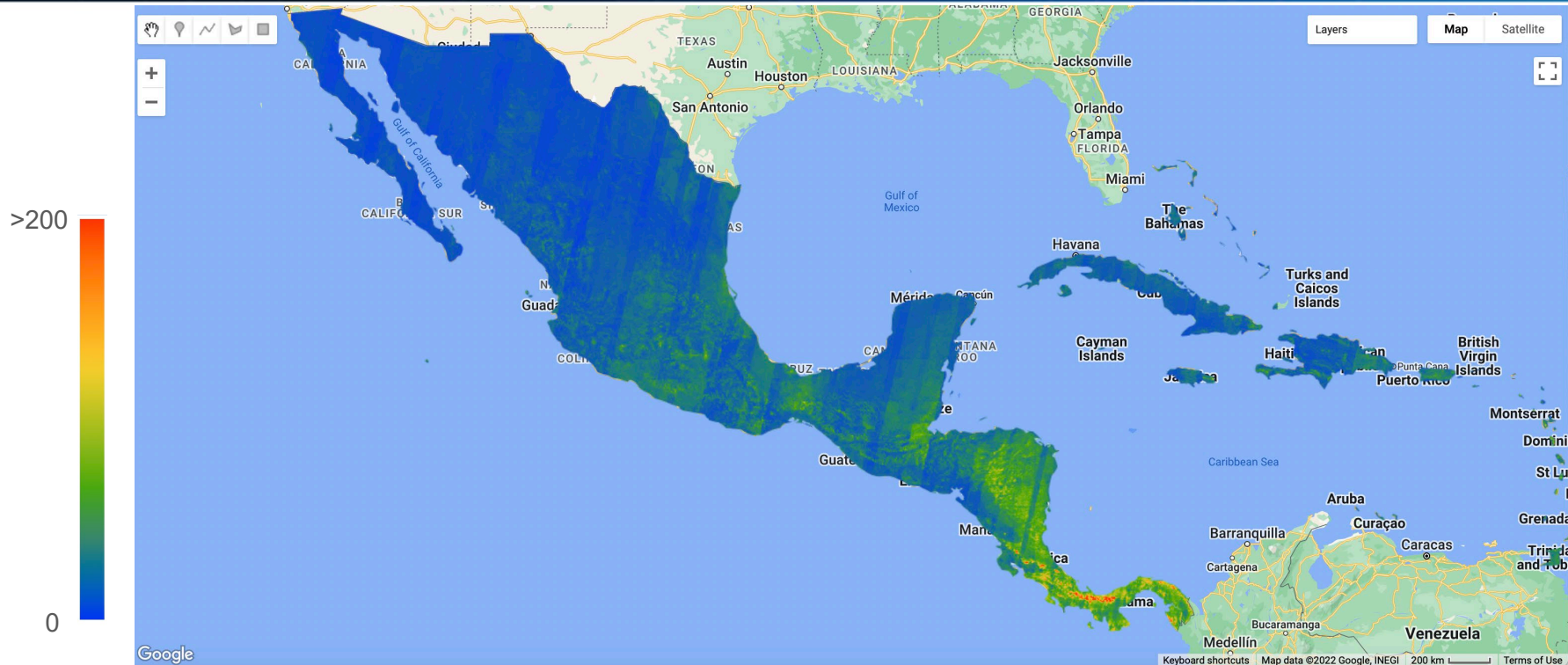
Where are data gaps?

Year 2021



Number of cloud free observations from Landsat 7 and 8 and Sentinel-2 over the tropics.

When would data be needed?



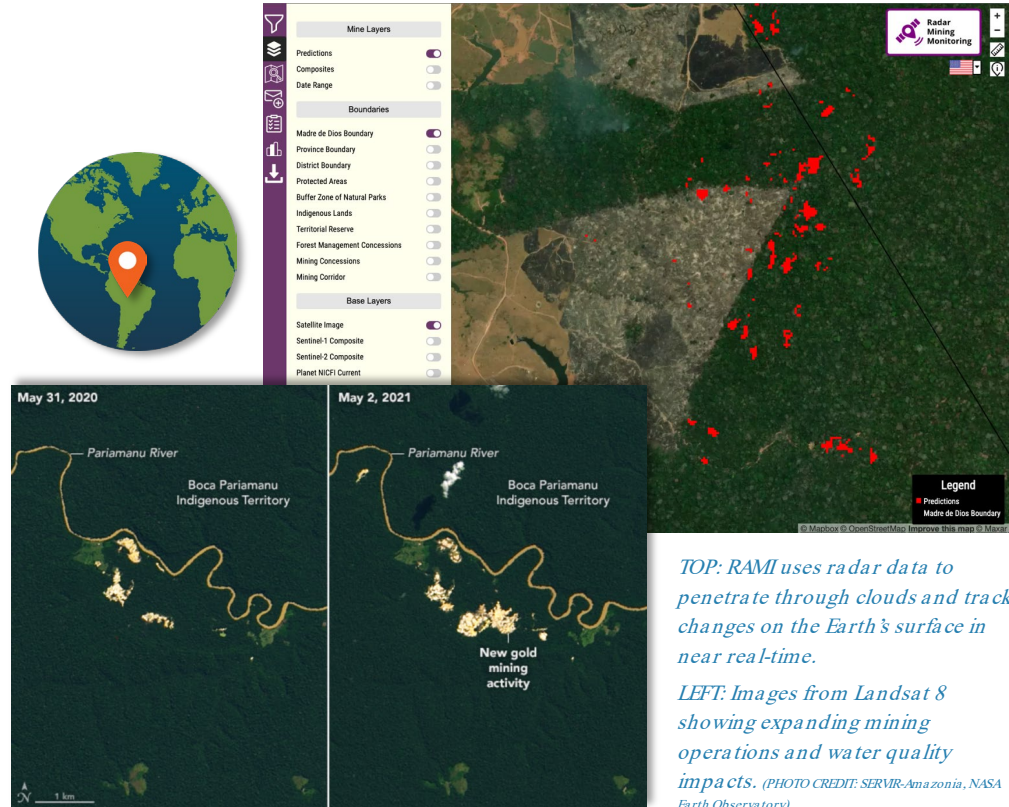
Maximum waiting time -in days- between a cloud free observation (Landsat 7, 8 and Sentinel-2)

In preparation: Flores-Anderson, A.I. Et al *Spatial and Temporal Availability of Cloud-free Optical Observations in the Tropics to Monitor Deforestation*

Tracking Illegal Gold Mining in the Amazon

Small-scale gold mining has led to over **250,000 acres of forest loss** in the Peruvian Amazon over the past 30 years.

- The Radar Mining Monitoring Tool (RAMI) tracks mining-related deforestation and **differentiates** between **illegal, informal, and formal mining**
- RAMI equips land managers with actionable information, and helps scientists better **understand the effects of gold mining** on local rivers and forests
- The service is the result of a cross-Atlantic collaboration with SERVIR-West Africa, where mining in Ghana's high forests poses similar challenges





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