



# Open Data Strategy at Planet

Planet



Open Data Knowledge Workshop 2023

Pooja Pandey · June 11th, 2023



# Our Mission

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To image the whole world every day, making change **visible, accessible, and actionable.**



# Planet's Broad Suite of Solutions

## CAPTURE

### Monitoring

PlanetScope  
3.7 m imagery  
updated on a near-  
daily basis



### Tasking

SkySat imagery tasking  
with rapid intraday revisit  
capability



## ENHANCE

### Basemaps

Visually consistent  
and scientifically  
accurate imagery over  
broad areas



### Archive

Access to proprietary  
datasets back to 2009  
and public datasets  
back to 1972



## ANALYZE

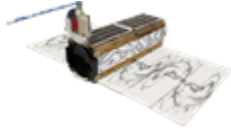
### Analytic Feeds

Detection and analytic  
capabilities layered on top of  
Planet Monitoring and  
Basemaps





## CURRENT CONSTELLATIONS



### Dove

#### Always-on Monitoring

- ~180 satellites
- Up to 300 million km<sup>2</sup> / day
- 8-band
- Daily revisit



### SkySat

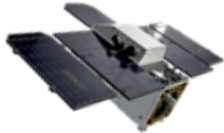
#### High-Resolution Tasking

- 21 satellites
- 50cm resolution
- RGB, NIR, and Pan bands
- Sub-daily tasking

## VISIBLE

# Agile Space Missions

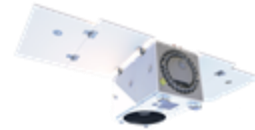
## PLANNED FUTURE CONSTELLATIONS



### Tanager

#### Hyperspectral Tasking

- 400 - 2500 nm
- ~400 5nm bands
- Technical demo planned to launch late 2023



### Pelican

#### Very High Resolution Tasking

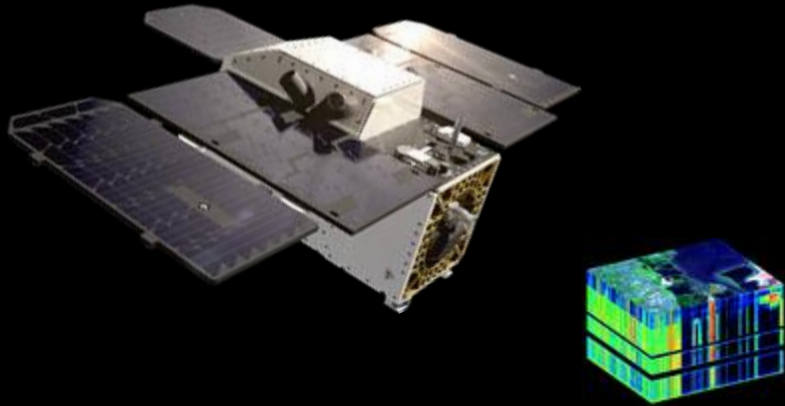
- Initial fleet of up to 30 satellites<sup>1</sup>
- 30cm resolution
- Pan + 6 RGB+NIR bands
- Up to 30 revisits/day





# High Precision Hyperspectral Data

Brought to you by Tanager



Hyperspectral imaging captures the unseen, revealing valuable information that enables improved modeling, reduced uncertainty, and better, more efficient decision making.



- CROP DIFFERENTIATION • BIODIVERSITY TRACKING
- METHANE MONITORING • MATERIALS IDENTIFICATION
- ENVIRONMENTAL SITE ASSESSMENT
- SOIL CHARACTERISTICS • AND MANY MORE



# Part of the Carbon Mapper Coalition



- Non-profit (501c3) entity
- Incubates public-private partnership
- Manages the global open data portal
- Leads research, outreach and advocacy efforts for Methane/CO<sub>2</sub> mitigation



**HIGHTIDE**  
FOUNDATION

**Bloomberg**  
Philanthropies

**Grantham Foundation**  
for the Protection of the Environment

PHILANTHROPY

**CALIFORNIA**  
AIR RESOURCES BOARD

**RMI**  
ENERGY TRANSFORMED.

REGULATORY

**planet.**

**JPL**  
Jet Propulsion Laboratory

- Commercial data provider
- Engineering innovation
- Spacecraft & operations provider
- Hyperspectral Payload provider
- Transfers knowhow and expertise

TECHNOLOGY

**ASU**

SCIENCE





## The Carbon Mapper Mission Is Critical in Tackling the Climate Crisis

- Ability to detect 23 billion tonnes CO<sub>2</sub>e/year, equal to ~32% of global CO<sub>2</sub> and methane.
- Providing rapid methane leak detection service for facility operators and regulators enables voluntary mitigation
- Developing a global open data portal for transparency and wide adoption
- Establishing a trusted certification of reported methane intensity for gas supply chains
- Public/private partnership ensures sustainable business model and longevity

Gas pipeline leak detected by AVIRIS-NG, repaired by operator



<https://photojournal.jpl.nasa.gov/catalog/PIA22467>



Source: Riley Duren, Carbon Mapper





# Programs



## DLR - RESA Program

German Space Agency funding Planet data to the German research community



## ESA EarthNet Program

European Space Agency program funding Planet data to researchers and startups



## Commercial Smallsat Data Acquisition (CSDA) Program

280,000 researchers getting access to Planet data (all Civil Fed Gov researchers and their grantees)



## Copernicus Masters

Organizing Startup challenges for innovative business ideas



## ESA Business Incubation Centers

Partnership with Planet for supporting startups



## German Federal Government

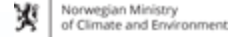
Flat Rate Subscription for 439 German federal agencies





# + The NICFI Satellite Data Program

## Monitoring Deforestation of the World's Tropics with Norway

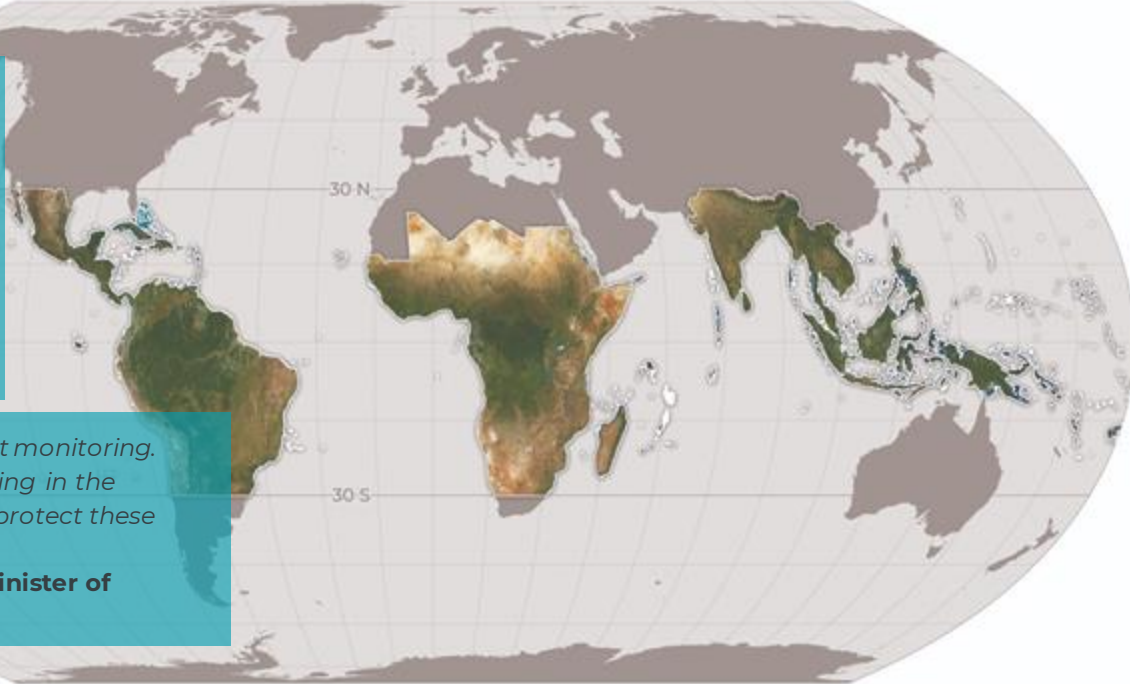


**Planet** is providing **NICFI** with high-res monitoring of the global tropics to bring unprecedented data & transparency to global climate & conservation efforts.

**14,000 registered users representing 155 countries and government, nonprofit, and private sectors.**

*"This will revolutionize global forest monitoring. Better insight into what is happening in the rainforests will enhance efforts to protect these priceless ecosystems."*

**- Sveinung Rotevatn, Norway's Minister of Climate and Environment.**



*Global map showing the extent of monthly Planet Basemaps to be provided through the partnership for tropical forest monitoring.*





## Impact of the Program

**>300**

USER STORIES  
COLLECTED

**130** countries

REGISTERED TO USE  
THE PROGRAM

**25%** increase

OF USAGE OF NICFI DATA ON  
GFW Q1 – Q2 2021

**63%**

OF TOTAL BASEMAP SELECTIONS ON  
GFW FOR FIRST 6 MONTHS OF THE  
PROGRAM WERE THE NICFI  
BASEMAPS

**70%**

OF USERS SURVEYED USE  
NICFI DATA AS THEIR  
PRIMARY IMAGE SOURCE

**97** countries

INCLUDED IN THE  
PROGRAM

**11**

JOURNAL ARTICLES IN  
PEER REVIEW PROCESS

**15.1** million

TILES STREAMED FROM  
PLANET EXPLORER

**>12,000**

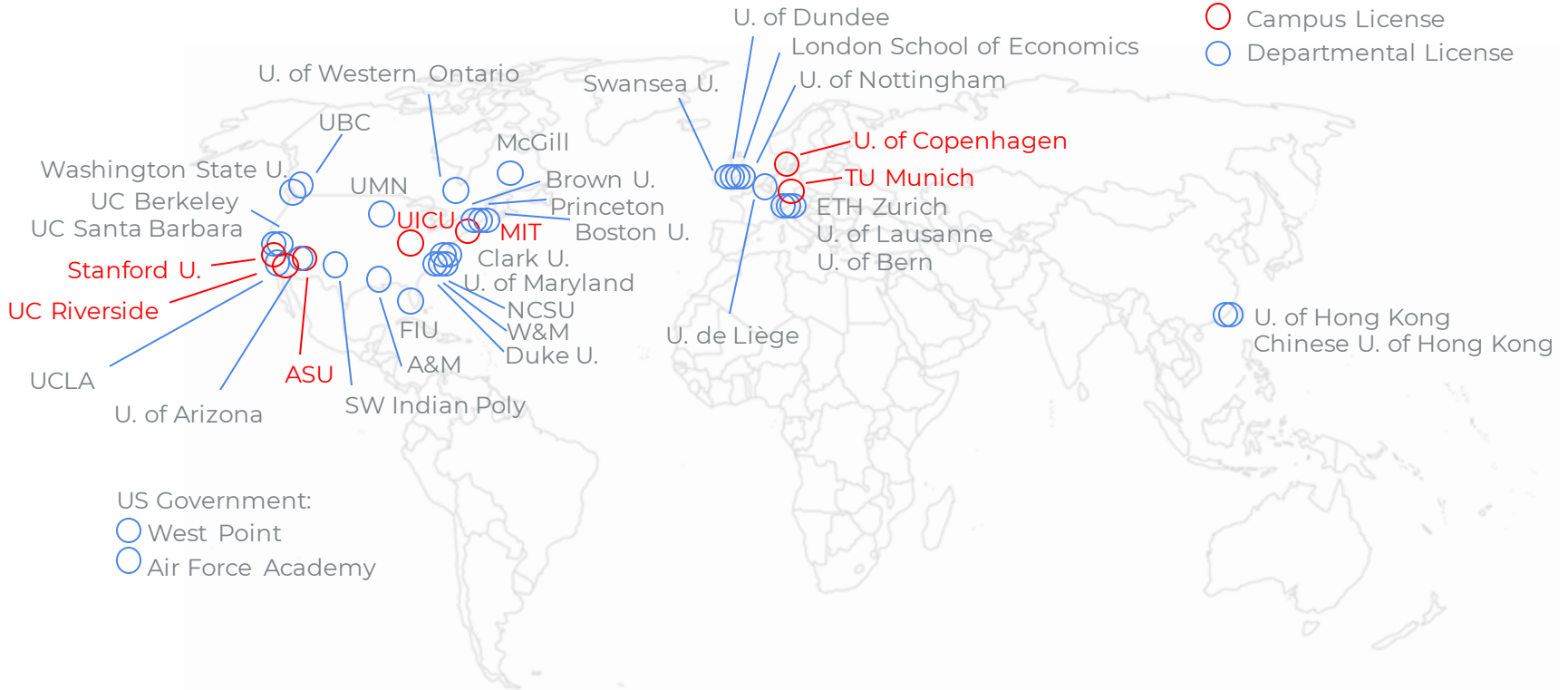
USERS REGISTERED





# Global Education and Research Program

University Site Licenses: High Volume Solutions



# Impact of E&R Program

More than 900 peer-reviewed publications & conference papers:  
[www.planet.com/pulse/publications](http://www.planet.com/pulse/publications)

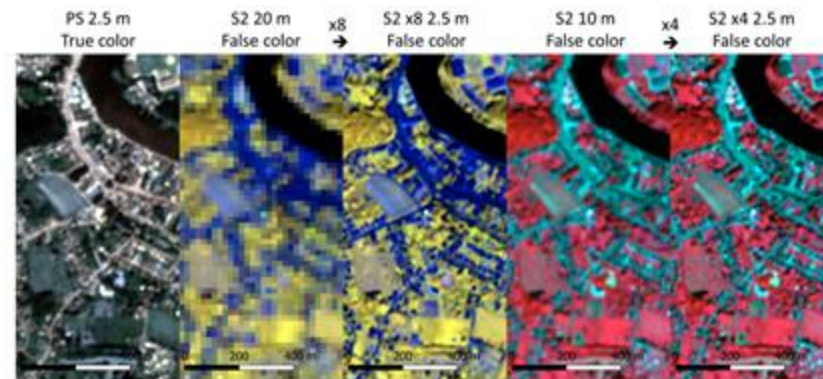
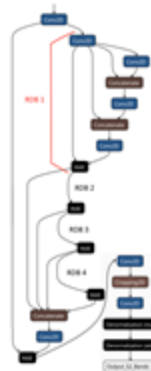


Remote sensing science;  
 Imaging and calibration;  
 Atmospheric correction;  
 Sensor fusion.

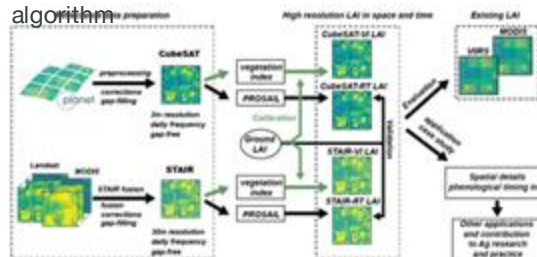
See also, e.g.,  
 Houborg et al. 2018 [Remote Sensing of Environment](#)  
 Houborg et al. 2018 [Remote Sensing](#)

Remote sensing research demonstrates consistently high-accuracy sensor fusion between Planet data and other Earth Observation datasets

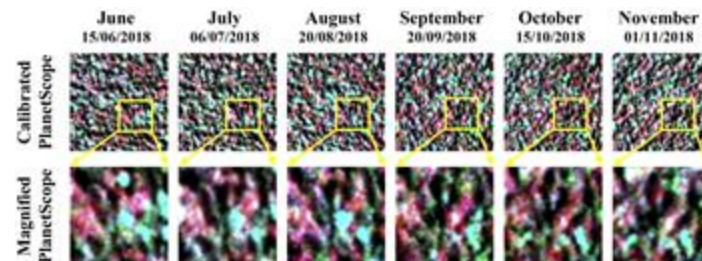
Latte and Lejeune 2020 [Remote Sensing](#), fused Dove and Sentinel-2 imagery to achieve 2.5m superresolution data using Residual Convolutional Neural Networks, stabilizing radiometry across time-series and multiple S2 target sites.



Kim et al. 2020 [Remote Sensing of Environment](#), fused Dove and MODIS imagery to achieve 3m resolution LAI with STAIRS algorithm.



Wang et al. 2020 [Remote Sensing of Environment](#), fused Dove and MODIS imagery using histogram matching to explore dense tropical forest phenology



# + Planet Open data

## Strategy for the next decade

- **Leveraging open standards and open source software in a smart way can give Planet a real advantage in building a platform.** We aim to embrace and encourage interoperable 'cloud-native geospatial' standards like COG & STAC to lay the groundwork for the world's data to be a part of our platform.
- **The core of the vision is that the vast majority of all geospatial information will live natively on the cloud.** And if all that data is stored in cloud-optimized interoperable formats then it enables geospatial data to become a fundamental infrastructure for tackling the biggest challenges in our world.
- **Planet wants to be *the* Earth Data Platform** for users across the globe:
  - **Seeding the landscape**
    - Data Gravity: **Geospatial data increases in value when it can be combined with other data, and having interoperable data in the cloud will make it much easier to combine with Planet's data.** And thus the more data that is in the cloud the more likely it is to attract additional data.
    - **Planet has already done a solid job of seeding the landscape, with early thought leadership around COG and STAC,** funding of GDAL and STAC ecosystem tools, and encouraging Amazon, Google and Microsoft to all adopt various aspects of cloud-native geospatial
  - **Accelerate Velocity to the Cloud**
    - This means **greatly expanding the pie by integrating with as many other tools as possible,** and being a real champion of interoperability.



# Lessons Learned So Far

- We need scientific progress linked to sustainable development - Enablement of the scientific community
- Working with end users under an open license has facilitated trust and partnership - collaborative solutioning
- Increased adoption and solution scaling
- Public-private partnerships are key
- Leave no-one behind





# Thank you.



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