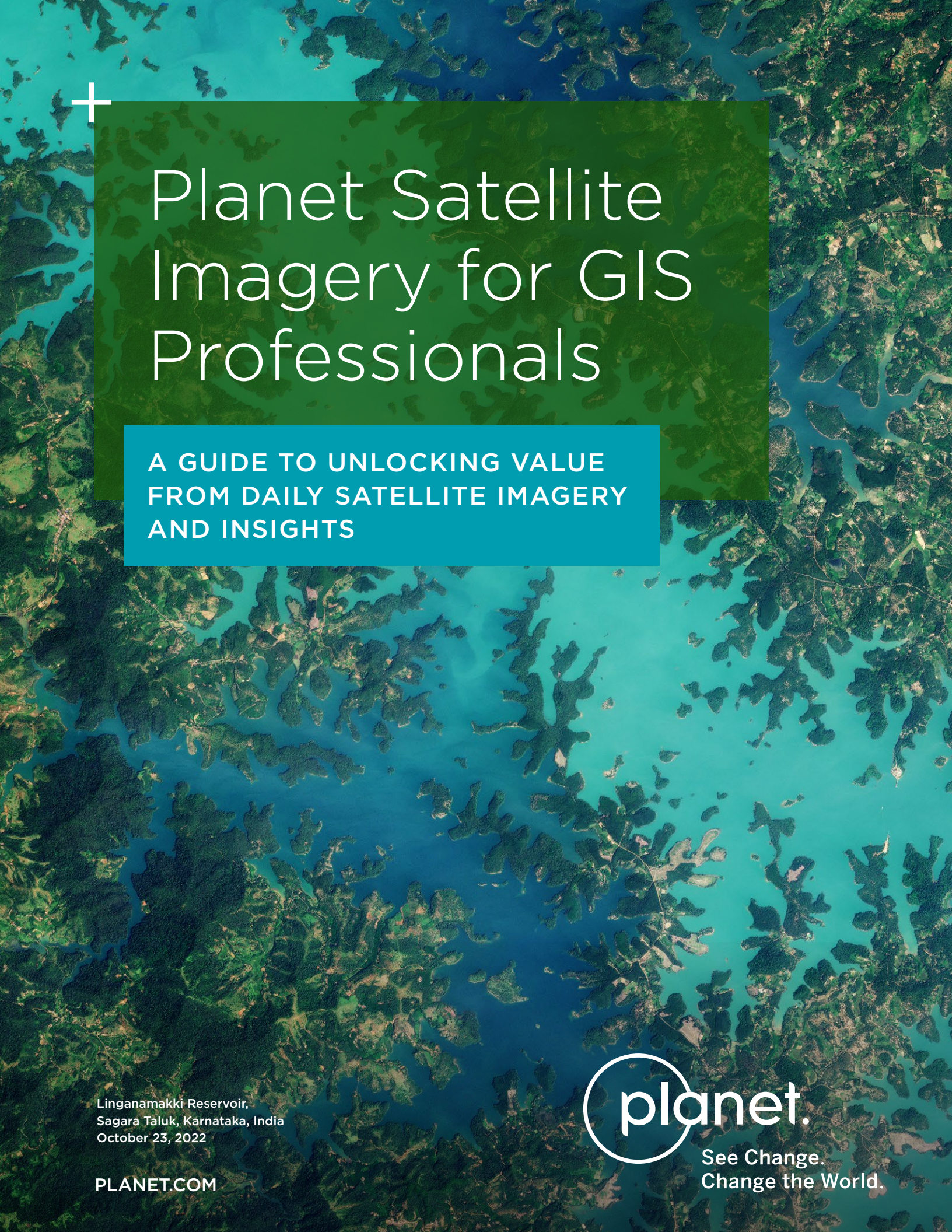
Planet Satellite Imagery for GIS Professionals

A GUIDE TO UNLOCKING VALUE FROM DAILY SATELLITE IMAGERY AND INSIGHTS



Linganamakki Reservoir,
Sagara Taluk, Karnataka, India
October 23, 2022

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See Change.
Change the World.

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Geospatial Innovation With Daily Imagery

PLANET CUSTOMERS COVER MORE GROUND

9M acres

SURFACE LAND MANAGED BY NEW MEXICO STATE LAND OFFICE

8.6M km^2

BRAZILIAN TERRITORY AND MARINE COAST AREAS MONITORED BY BRAZIL FEDERAL POLICE

50 PB

AMOUNT OF PLANET SATELLITE DATA AVAILABLE TO TRAIN AI AND ML MODELS

In today's world, the value of geospatial information is more crucial than ever and more companies are seeking to use location intelligence in their operations. At the same time, more sources of geospatial data, such as from satellite remote sensing, are available than ever before. This presents opportunities for geospatial teams to have an impact and generate value.

Traditional use of imagery in GIS has been expensive, out of date, and difficult to manage. More often than not, basemaps in GIS software use satellite imagery that doesn't show the true nature of the ground conditions.

Planet first revolutionized the Earth observation industry with Planet Monitoring, a source of global, daily, and high-resolution imagery. Now, Planet has built a powerful platform for analyzing this imagery and integrating with geospatial software.

Frequent imagery and accurate analytics from Planet are critical building blocks for maps that help manage natural resources, protect public lands, monitor disasters, and much more.

Drought along Loire River, France • August 11, 2022

THE PLANET APPROACH

Transform Your GIS Workflow

Dove Satellite Constellation

Always-on Monitoring

RESOLUTION	CAPACITY	BANDS
3.7 m	350 M km² per day	8 (RGB + Green II, Yellow, Red Edge and NIR)

SkySat Satellite Constellation

High-resolution Tasking

RESOLUTION	CAPACITY	BANDS
0.5 m	400 K km² per day	5 (RGB, NIR, pan)

Better information means better decisions. Our product offerings provide fresh insights of even the most remote locations on the globe. From satellites to APIs, we've built our entire suite using the latest components of the consumer electronics industry and open source software.

Monitoring

PlanetScope Monitoring provides a hi-res, continuous, and complete view of the world from above, every day. Observe areas of interest, discover patterns, track infrastructure, and identify changes as they happen.

PlanetScope of Bute Inlet, British Columbia, Canada • July 27, 2023

Tasking

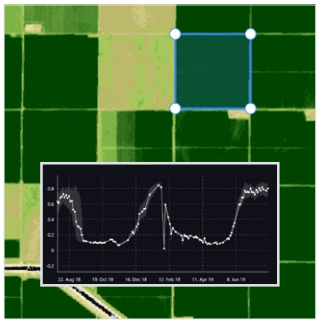
Equipped with near-infrared, stereo, and video capabilities, the Planet SkySat fleet can revisit any point on Earth at 0.5 m resolution with sub-daily revisits — a higher frequency than any other commercial hi-res imagery provider.

SkySat of Drone base in Dirkou, Niger • March 3, 2021

Planetary Variables and Analytics

Planetary Variables and Analytics transform satellite data into actionable insights for monitoring Earth's surface, providing measurements of key phenomena, classifying objects in imagery, and quantifying changes over time.

Soil Water Content measurements in Andalusia, Spain



Planet Platform

The fully automated, cloud-based imagery platform downloads, processes, and manages multiple terabytes of data daily. Built for speed and affordability, the platform enables you to build tools, ingest data, and run analytics at scale.

PlanetScope of agriculture with time series of NDVI for selected field

Seamless Integration and Access

GIS Integration Patterns

Satellite imagery can be a complex data source to manage. Traditional patterns of accessing imagery necessitate using multiple interfaces or moving around massive volumes of data. This results in low adoption of remote sensing technology, inhibiting the value you can get from incorporating Earth observation into your workflows.

Planet has turned this system upside-down. We take a software platform approach to Earth observation, by providing user-friendly GIS integrations and imagery-hosting services — and modern APIs. **Whatever your needs, Planet makes it easy to integrate satellite imagery into your geospatial tools.**

Tile Services

Seamlessly stream OGC web services directly from Planet into your GIS applications.

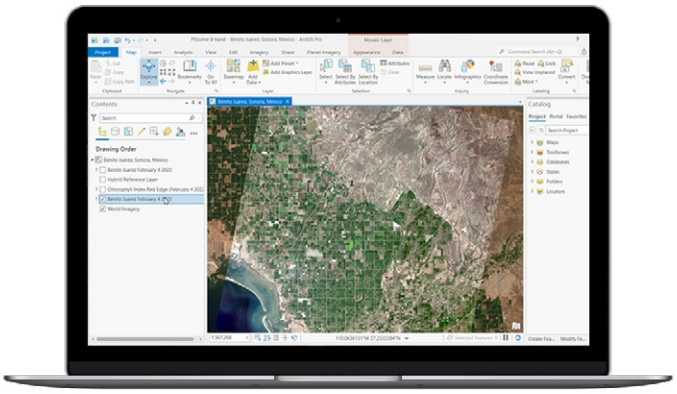
API-First Platform

Build custom integrations and data pipelines to power any earth observation solution built on ArcGIS.

GIS Integrations

Simply search, access, and analyze the Planet catalog of daily, global imagery directly from ArcGIS Pro.

esri QGIS Google Earth Engine



ArcGIS and QGIS Integrations

If you are working with desktop GIS tools like ArcGIS Pro and QGIS, Planet offers extensions to these tools that brings access to our imagery directly into the software that you are already familiar with.

1. Install the Planet Add-In for ArcGIS Pro and log in with your Planet account.
2. Search and access imagery from the Planet catalog directly from ArcGIS Pro.
3. Order and download imagery for your specific areas and times of interest.
4. Analyze Planet imagery, then create and share maps through ArcGIS.

Download QGIS Plugin **Download ArcGIS Add-in**

Scalable Earth Observation Platform

Sentinel Hub

Planet has acquired Sentinel Hub, an advanced API-first Earth observation platform. With Sentinel Hub, you can access Planet and public imagery sources directly from the cloud — without building your own imagery management and analysis infrastructure.

Watch a Webinar

Cloud-Hosted Imagery Platform

Access Planet and public imagery directly from the cloud — without building your own imagery management infrastructure

Configurable Analysis APIs

Create customized visualizations, spectral indices, and statistic calculations to extract insights from imagery in seconds

Imagery Streaming

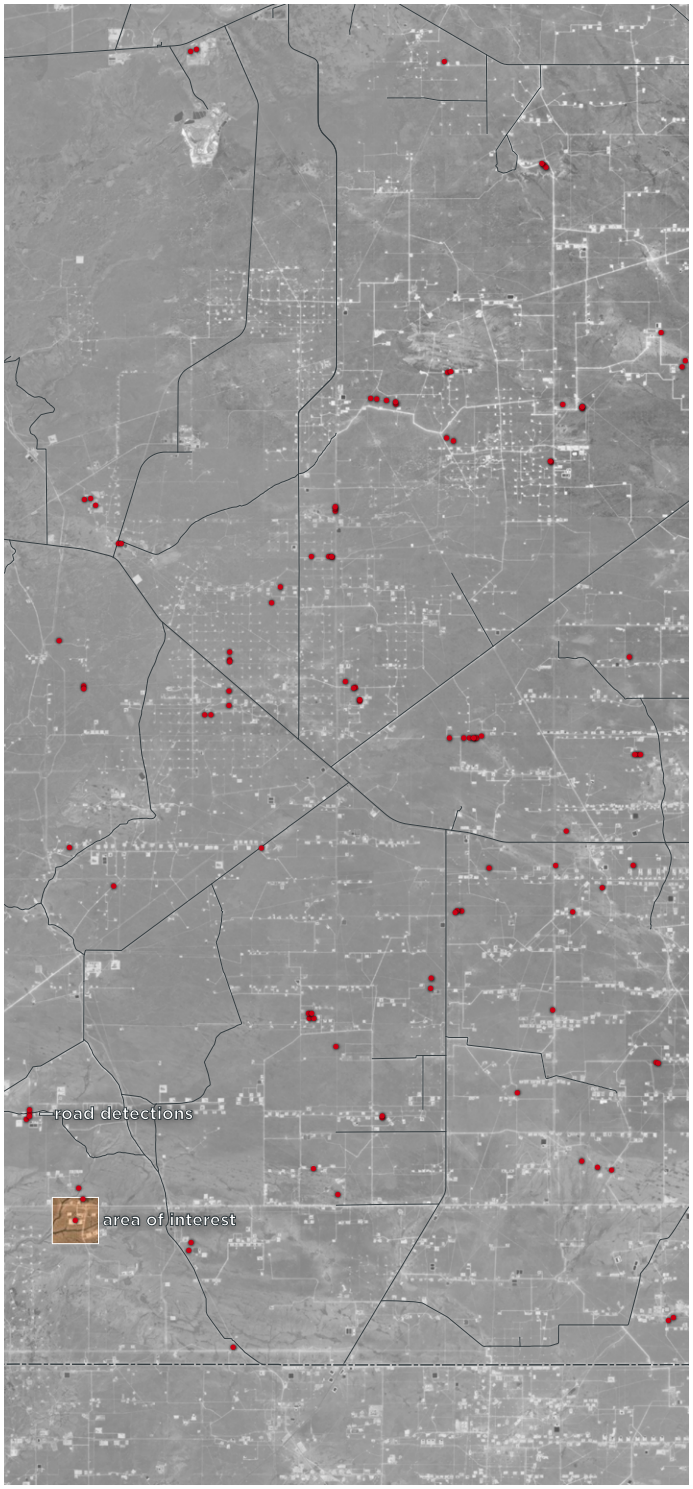
Access full spatial resolution, bit depth, and spectral bands over the web after you order imagery

Integrate Into any Workflow

Utilize serverless processing to integrate imagery into your custom application, data science workflow, or GIS through streaming APIs

HOW IT WORKS

Broad Area Monitoring



Planet Road Change Detection (red) automatically highlights where new rights-of-way were developed across NMSLO's managed land.

Natural resource management areas span broad geographies which are often difficult to access and costly to visit with on-the-ground inspections. Planet's one-of-a-kind medium-resolution satellite constellation, PlanetScope, enables you to monitor these large-scale areas with near-daily imagery — but with that much data, how do you know where to look?

Organizations don't have the time or resources to manually inspect imagery.

Planet makes it easier for GIS professionals to monitor broad areas with:

- Analysis-ready mosaics of imagery optimized for monitoring broad areas

  Learn More

- Change Detection Feeds: Automated analytics that can detect changes over broad areas using machine learning

  Learn More

HOW IT WORKS

Flexible High-Resolution Tasking

PlanetScope imagery shows road change detection. Subsequent tip and cue tasking of high-resolution imagery shows bundles of logs along the new roads. Arroio dos Ratos, Rio Grande do Sul, Brazil.

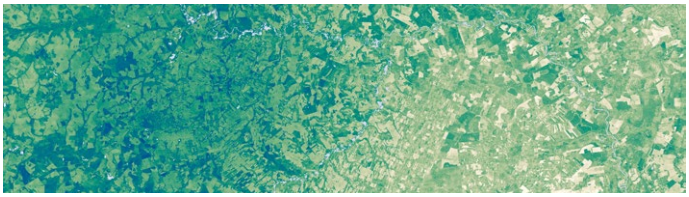
Near-daily PlanetScope imagery, combined with automated analytic feeds, gives you the time-saving tip you need to detect changes in your broad area of interest. But what if you need to take a closer look? Aerial flyovers are expensive, and boots-on-the-ground inspections are time-consuming and often not possible depending on terrain, staffing, and local conditions.

Planet ensures you have the flexibility and transparency to get imagery when and where you need it with:

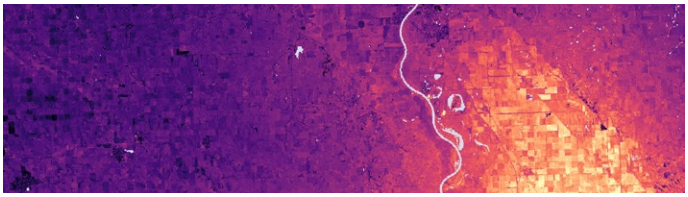
- Tip and cue with medium resolution imagery to identify top targets for high-resolution tasking
- Hands-free imagery management: Planet can provide a mosaic of your tasked imagery as an OGC service
- Flexible satellite tasking dashboard to request high-frequency, high-resolution satellite imagery and data
- Stereo collection for 3D models and DEM construction, off-nadir imagery, and videos of nearly any location in the world

Learn More

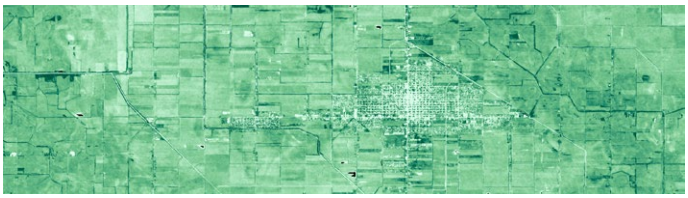
Quantifying Global Change



SOIL WATER CONTENT

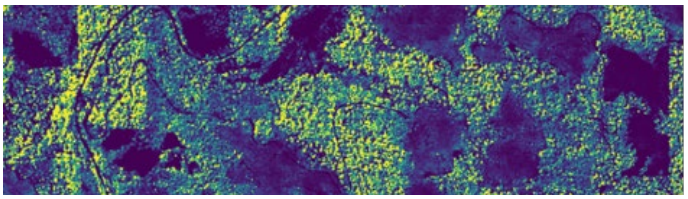


LAND SURFACE TEMPERATURE



CROP BIOMASS

FOREST STRUCTURE



FOREST CARBON

VEGETATION ENCROACHMENT

Satellite imagery presents unique complexities for deriving valuable information that pertains to your specific problems. If you are managing forests, how do you turn a satellite image into the insights that matter to you, such as tree heights and biomass? Or if you are optimizing agriculture production, how do you create a model from satellite data to understand the crop biomass?

Traditionally, you would need to develop algorithms to turn satellite data into these variables that describe forests, agriculture, and more. This is why Planet has developed its line of derived data products, which we call Planetary Variables. **Planetary Variables are pre-processed, accurate data feeds that measure important conditions on the surface of the Earth.** They're scientifically validated, globally available, granular, and frequent.

We're building them to address the most pressing challenges on the planet. We want geospatial professionals to spend less time wrangling data and more time building solutions to make the data meaningful and solve business challenges.

Learn More

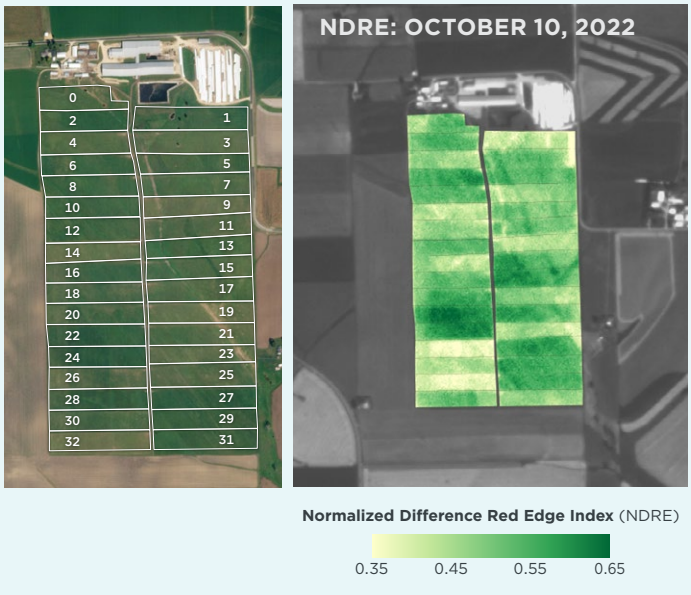
Planet's new, pre-processed data products: Planetary Variables

CASE STUDY

Sustainable Pasture Management at Organic Valley

About Organic Valley

Organic Valley is a national organic food brand and independent cooperative of small family farms headquartered in La Farge, Wisconsin, United States. Founded in 1988, Organic Valley is the nation's largest farmer-owned organic cooperative and one of the world's largest organic consumer brands. Nationwide, Organic Valley farmers manage more than 175,000 acres of pastureland.



Map of paddock distribution at Tranel Farm in Wisconsin and NDRE over the same area showing insights into pasture health.

Organic farms are challenged with ensuring cows obtain 30% of their feed from in-pasture grazing. As a result, pasture utilization has an important impact on a farm's performance. Traditional pasture measurement methods are time-consuming and prone to sample error, as they require daily, manual measurements over large areas of land. In 2021 Organic Valley launched a pilot program to use Planet satellite imagery to measure pasture health on Organic Valley dairy farms.

Farmers in the program can access near-daily reports to support dairy herd nutrition, protect and improve their pastures, and reverse climate change. The pasture reports provide details on the health of each paddock, allowing farmers to focus on specific paddock trouble spots — due to overgrazing or excessively wet or dry conditions — and determine paddock rotation to maximize efficiency while maintaining pasture health.

"We have a pretty robust GIS program, but we weren't doing a whole lot with imagery," said Phil Marty, the Organic Valley GIS specialist. "Planet's team brought us up to speed by connecting us with the API, giving us a crash course on working with Planet imagery and imagery in general. They've been a great partner throughout this project."

Learn More

CASE STUDY

Monitoring Permitted Cannabis Operations in Humboldt County

About Humboldt County

Humboldt County's Code Enforcement Unit (CEU) was required to identify and take action on unpermitted cannabis cultivation operations outside the Commercial Medical Marijuana Land Use Ordinance of 2016. The Humboldt Environmental Impact Reduction Program (HEIR) was established to reduce environmental impacts from unpermitted operations and monitor compliance of those going through the permitting process.

Since the legalization of marijuana in California in 2016, Humboldt County has been responsible for enforcing permitting rules around cannabis growing operations. Previously, they only had the resources to investigate complaints reported by citizens or by stumbling upon operations during other inspections.

Humboldt is now using Planet high-resolution imagery to monitor cannabis greenhouses around the county for permit compliance and enforcement. Planet imagery is integrated into their enterprise GIS software to overlay data such as permit status, building permits, and zoning. This gives officials quick access to status and conditions of parcels with a cannabis operation.

The county is now proactively searching for non-permitted grow operations. Their team has pulled in an additional $2 million in county revenue and went from issuing around 100 citations a year to 700.

Learn More

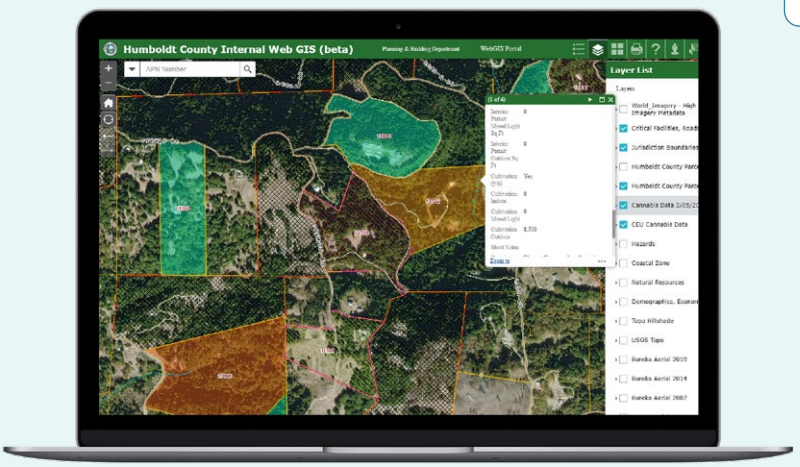


Image of internal web GIS showing SkySat imagery with data overlays of properties with applications, permitted cultivation sites, and code enforcement cases. Pop-ups are fed from permitting databases to provide parcel and project level data to users as they pan and zoom through user-selected GIS layers and monthly SkySat Basemap.

CASE STUDY

Measuring and Reporting Environmental Change With SkyTec

SKYTEC

About Skytec

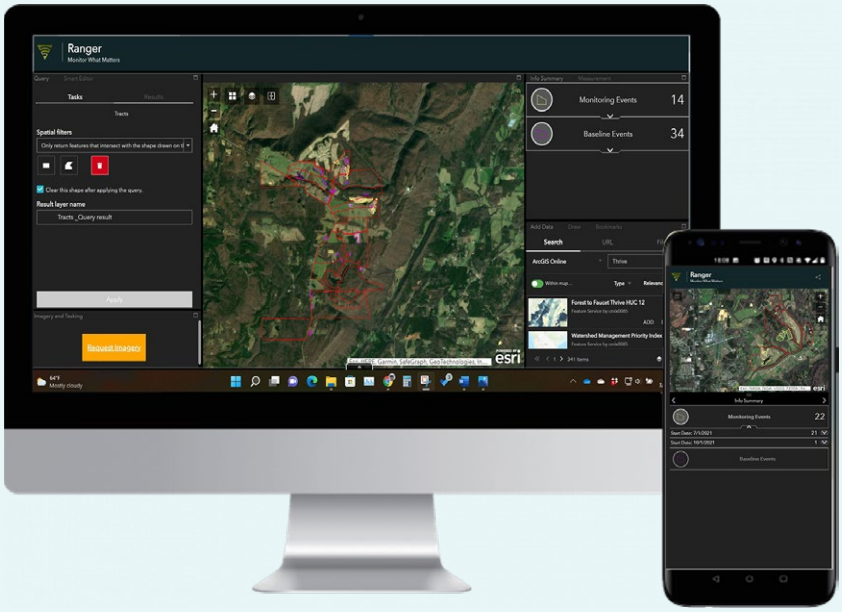
Skytec is a team of experienced geospatial and environmental professionals specializing in applications of GIS, remote sensing, and drone mapping technologies. Since 2015, Skytec has provided premium data capture, analysis, and information delivery services with a commitment to innovation, efficiency, and achieving clients' objectives. To learn more about Skytec's Ranger solution visit skytecllc.com and follow on LinkedIn.

Skytec leveraged Planet imagery in ArcGIS to remotely monitor clients' areas of interest for landscape changes such as boundary encroachments, harvests, vegetation clearing, construction, or other land disturbances.

Skytec creates change detection analytics through the use of PlanetScope products and verifies them by tasking SkySat imagery in a tip and cue process. All image products and new change detection layers are presented and reported in the Ranger application dashboard, a global monitoring system built on ArcGIS.

Ranger users can also take advantage of ESRI's massive library of global layers through the Living Atlas, deploy field mapping apps, and directly connect into ArcGIS Enterprise or ArcGIS Online. This system architecture allows for a comprehensive remote-to-field monitoring solution.

Learn More



Skytec Ranger monitoring application dashboard.

Planet Satellite Imagery for GIS Professionals

FIND OUT MORE

Planet daily and high-resolution satellite imagery enable you to easily integrate Earth observation into your geospatial workflows, unlocking new insights and making your workflows more efficient. Learn more about how Planet imagery is being used across different use cases, below.

Learn About Planet for Permitting and Enforcement

See how Planet users benefit from high-cadence satellite imagery to protect public lands and generate revenue:

> Planet State & Local Buyer's Guide

Dive Deeper Into Water Management

Discover how civil governments are addressing water challenges:

> A New World of Water e-book

Using Planet Data for Wildfires

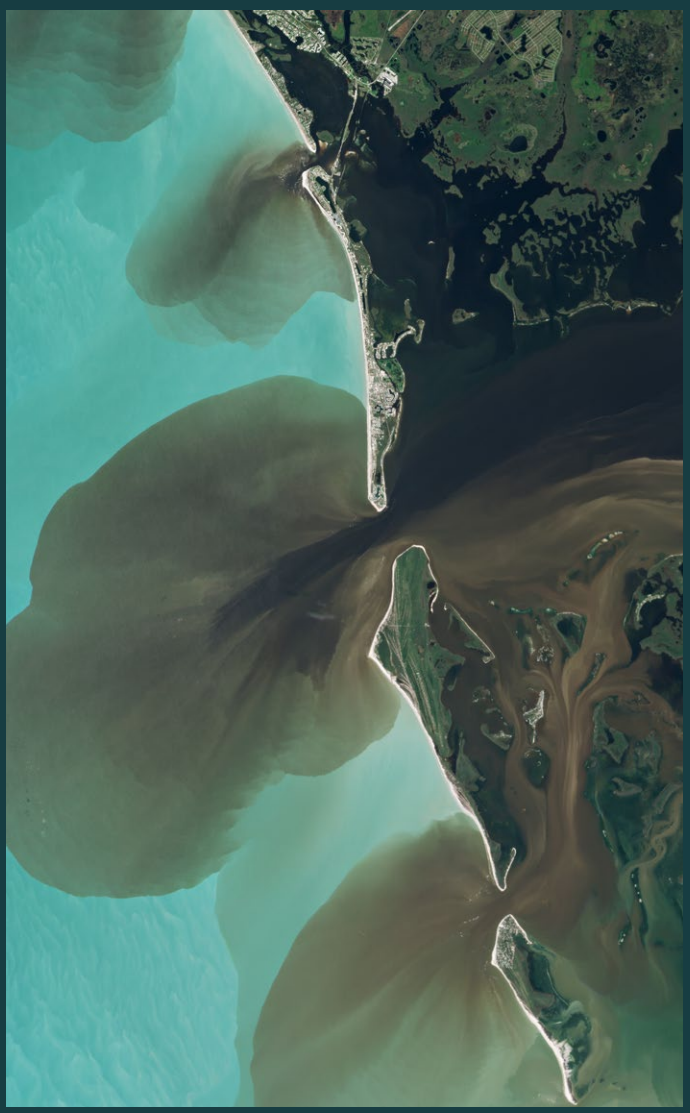
Learn about how daily data is revolutionizing wildfire management and emergency response:

> Planet Data for Wildfires e-book

Contact Us

Tell us more about your specific challenges, and we'll work with you to find the right path to actionable insights:

> Get in touch



Hurricane Ian • Gasparilla Sound, Florida
September 30, 2022