



Transforming Water Resource Management with Planet

Civil Government

Pelican
Oceanic Islands, Brazil
March 17, 2026

PLANET.COM



See Change.
Change the World.

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PlanetScope • Algae Bloom, North Sea • June 25, 2023

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NEW TOOLS TO IMPROVE DATA-DRIVEN DECISIONS

As more regions experience water stress, leaders face increasing pressure to improve data-driven decision-making in water management. Over the past decade, governments have started to combine traditional in-situ water measurements with satellite data to improve visibility over large areas.

However, several factors have slowed the adoption of satellite data for water management. Public satellite data may not have the spatial or temporal resolution required to monitor key areas of interest (AOIs). Many government systems aren't equipped to ingest high volumes of Earth observation data. Even with access problems solved, agencies may struggle to utilize data if only a few people have the geospatial expertise necessary to analyze it.

Planet helps governments solve these challenges while achieving a complete view of watersheds across their territory. Powered by the largest commercial constellation of Earth observation satellites in orbit and tools that enable users across government to analyze large datasets, Planet delivers deeper insights for effective water resource management.

HOW YOUR TEAM CAN USE PLANET DATA AND ANALYSIS TOOLS

Identify the location and extent of rapid changes to water quality and availability with near-daily 3.7 meter resolution PlanetScope® data. Use frequent data to locate and manage dynamic events like algal blooms, oil spills, flash droughts, coastal erosion, flooding, and landslides.

Get precise insights with 8 spectral bands.

Planet's 8-band, medium-resolution data unlocks new opportunities for water quality monitoring. Combine bands to measure quality indicators, highlight spectral signatures, and analyze specific characteristics of any body of water.

Fill data gaps using our archive of 3,000+ images over your area of interest. Leverage the vast Planet Archive to understand long-term trends and advance scientific research, while also monitoring the impact of water use policies and infrastructure investments.

Expand access to satellite-derived water resource data to more users with our flexible, cloud-based platform. Save time and money processing satellite-derived water resource data that's accessible to more people.



PlanetScope • Oder River, Germany • August 3, 2022
Credit: EOMAP

PLANET ENABLES BROAD AREA MANAGEMENT

Planet data complements and enhances public satellite systems by providing satellite coverage over a much broader area than in situ stream monitors and soil water sensors could address alone. Adding Planet data to your toolkit unlocks the ability to monitor detailed changes at scale, an approach we call broad area management. Users across government can monitor vast areas, identify relevant changes with AI-powered alerts, and gain valuable context from ready-to-use analytics.



GO BROADER

Monitor changes at landscape scale, such as entire coastlines and major watersheds, including in regions that are difficult to access or image by land, sea, or air.



LOOK BACKWARDS

Understand past events and trends at multiple timescales, from seasonal changes to decades-long patterns, and establish baselines for your analyses to understand where conditions are drying, and where they are getting warmer and wetter.



GET CLOSER

High-resolution tasking provides a more detailed look when you need it, for example, to understand flash drought conditions or track flood debris and oil spills as part of disaster management.



DELVE DEEPER

Monitor indicators into environmental health with 8-band, medium-resolution daily satellite imagery and derived data products like 1,000 m and 20 m resolution soil water content.

INTEGRATING EARTH DATA INTO GOVERNMENT WORKFLOWS

Planet offers more than input data for water management. Planet Insights Platform brings governments powerful tools to manage and analyze satellite data at scale. This cloud-native platform integrates proprietary datasets with public missions in one place, making it easy to quickly query, process, visualize, and analyze high volumes of Earth data and generate relevant statistics. Robust integrations make it possible to access and manipulate this data directly within existing systems such as ArcGIS or QGIS.

Modern APIs and cloud architectures help scale insights across departments and inter-agency systems. With Planet Insights Platform, you can share up-to-date, reliable information about changes to watersheds and the built environment.

Benefits for Program Managers



Monitor detailed changes to water bodies across your territory



Consolidate diverse water resource data inputs



Expand access to satellite-derived water resource data to more users



Reduce costs and complexities of cloud storage and large data downloads

Benefits for GIS Managers



Centralize proprietary and public water resource data



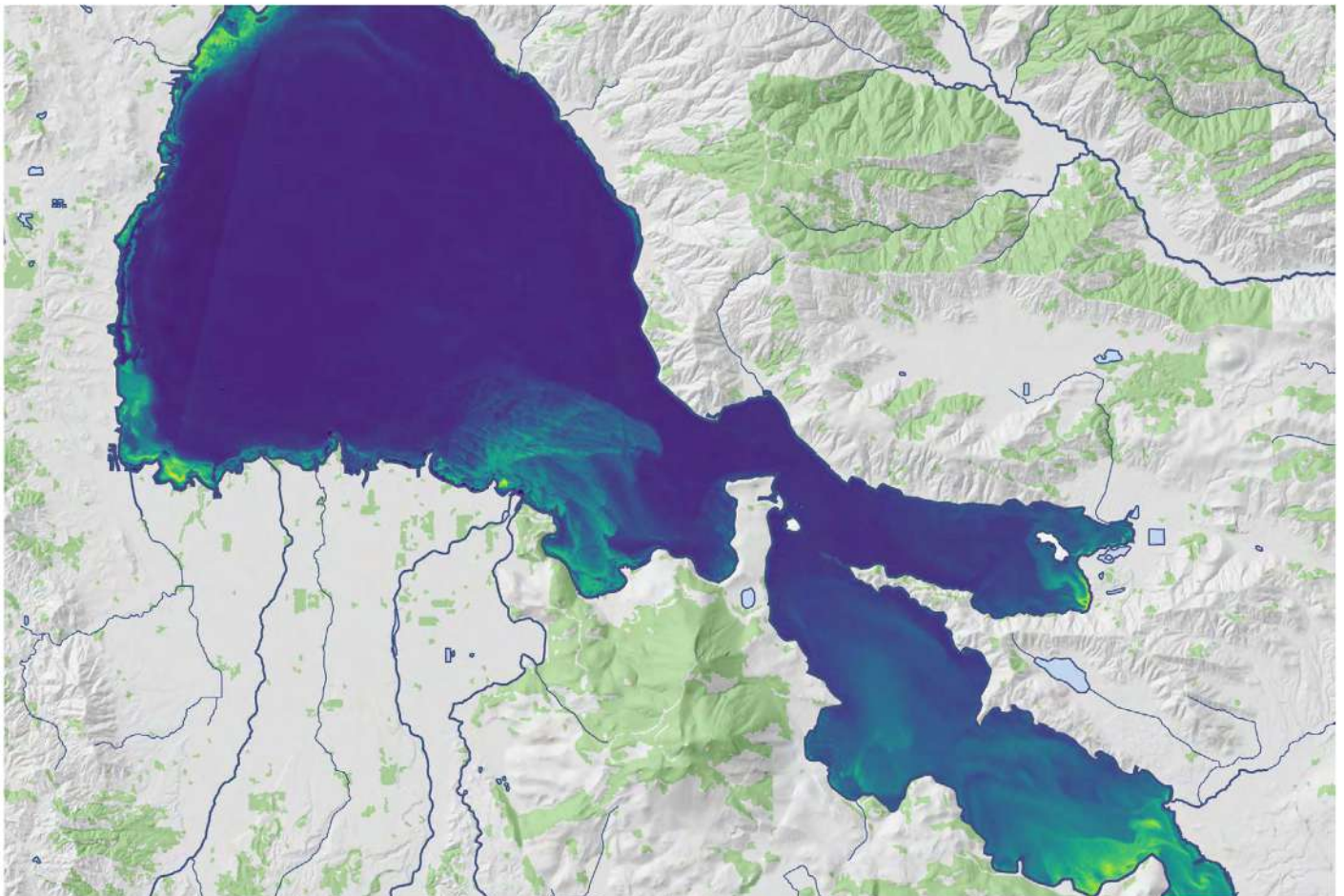
Conduct efficient, large-scale geospatial analysis and make remote sensing insights accessible to non-experts



Seamlessly integrate with other apps and leading GIS software



Professional services, partners, and support facilitate seamless integration and onboarding



PlanetScope • Maximum Chlorophyll Index • Clear Lake, California • July 8, 2022

National science and space agencies have always been on the cutting edge of applied science, particularly when it comes to predictive modeling. A well-trained model translates raw data into human impact, for example, by identifying which homes are most vulnerable to flooding, creating alerts for harmful algal blooms, or advising on how to set water restrictions to minimize the impact of drought on crop yield. However, the reliability of any predictive model depends on the quality and quantity of input data. In situ sensors, manual data collection, and satellite or drone coverage all have natural limitations that leave gaps in datasets.

Planet delivers a groundbreaking Earth observation dataset, offering an average of 3,000 layers of data for each point on Earth and accumulating 30 TB of data daily. This extensive dataset is unmatched for filling gaps, adding supplemental context, and sharpening models. By integrating Planet data, researchers can generate superior models that predict the likelihood and impact of specific water-related events in precise locations. Governments use this advanced predictive capability to make better-informed decisions about land and coastal planning, disaster management, and natural resource management. Hundreds of studies conducted since 2009 substantiate the validity of these models for the cryosphere and hydrosphere.

Search for papers on your topic of interest in our database: <https://publications.planet.com/>



PlanetScope • Maracaibo, Venezuela • June 22, 2023

“Our research projects and missions are advancing how we understand climate, security, and our global economy. With access to PlanetScope and RapidEye® satellite data, we give scientists the opportunity to develop new innovative methods and applications to derive better insights of our planet Earth with enhanced data analysis capacities and timely data inputs.”¹

GODELA ROBNER
HEAD OF EARTH OBSERVATION DEPARTMENT
GERMAN SPACE AGENCY AT DLR

¹ Planet Signs Multi-Year Contract with the German Space Agency, Providing Near-Daily Imagery and Deep Archive of Satellite Data, businesswire, September 16, 2024

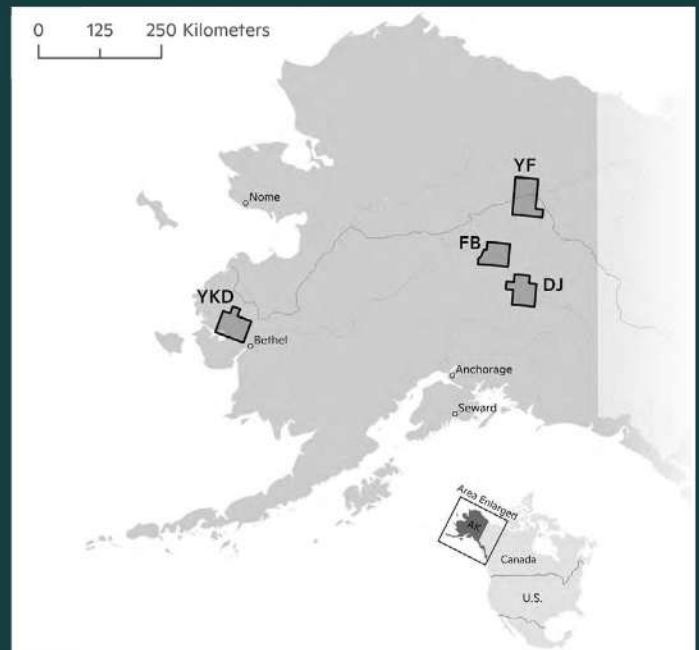
SPOTLIGHT

Tracking Dynamic Seasonality in Small Water Bodies

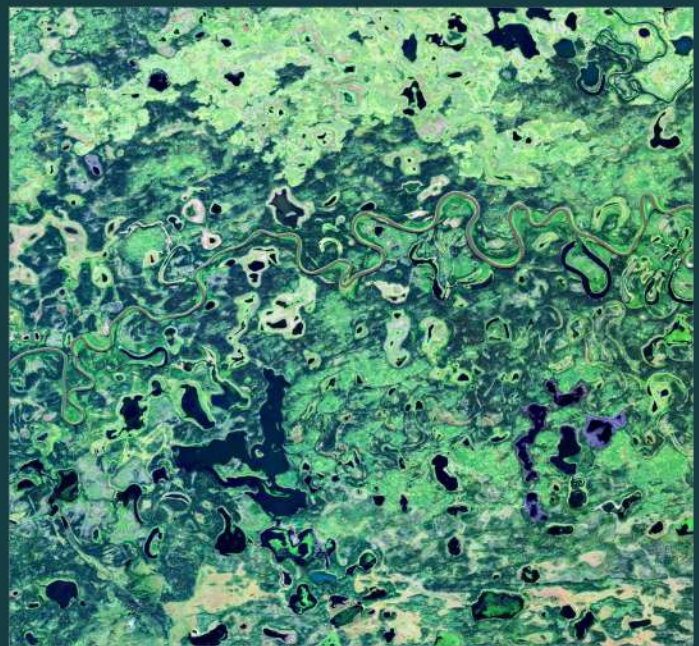
Fine-scale environmental data helps scientists develop accurate models and improve strategies for responding to environmental challenges. Public satellite data often lacks the spatial resolution required to monitor small water bodies, making it difficult for researchers to reliably map small lakes and ponds and detect seasonal changes in their surface area. Since small water features are often hotspots for methane production, the inability to quantify seasonal changes can underestimate greenhouse gas emissions and introduce bias into water resource modeling.

High-resolution satellite imagery combined with deep learning can help improve the accuracy of environmental models. In a 2023 AGU letter, researchers **reported** findings from a deep learning model that used Planet satellite imagery to map small ponds and lakes. The study revealed that Planet data can detect and track ponds and lakes $>0.0001 \text{ km}^2$, and that the total surface area for ponds in boreal forest and tundra environments can vary by 20%–40% throughout an individual season. These kinds of findings improve our understanding of how small water bodies contribute to carbon cycling and methane emissions, and likely aren't possible to arrive at through public satellite data alone. By using a deep learning approach to accurately map dynamic changes in small water bodies, researchers showed the vast potential for high-resolution satellite data to fill gaps and unearth new insights about our environment.

Read the study: Mullen, A. L., Watts, J. D., Rogers, B. M., Carroll, M. L., Elder, C. D., Noomah, J., et al. (2023). **Using high-resolution satellite imagery and deep learning to track dynamic seasonality in small water bodies.** *Geophysical Research Letters* 50(7). <https://doi.org/10.1029/2022GL102327>



Mullen, A. L., Watts, J. D., Rogers, B. M., Carroll, M. L., Elder, C. D., Noomah, J., et al. (2023). Using high-resolution satellite imagery and deep learning to track dynamic seasonality in small water bodies. *Geophysical Research Letters*, 50, e2022GL102327. <https://doi.org/10.1029/2022GL102327>, July 20, 2022



PlanetScope • Yukon Flats, Alaska • August 26, 2024

PROTECTING PEOPLE AND THE ENVIRONMENT

Watersheds cover vast areas that can be difficult to monitor. Whether you're supporting routine operations, managing unexpected events, or implementing new policies, Planet data has diverse applications for agencies whose mission revolves around protecting people and the environment.

HOW YOUR TEAM CAN USE PLANET DATA AND ANALYSIS TOOLS

Save time and money on water resource

monitoring: Governments use Planet data to preview sites in advance, streamline site visits and allocate resources to achieve a wide variety of program objectives.

Identify early indicators for water-related

hazards: The geographic resolution and temporal frequency of Planet data help agencies pinpoint where events like flash droughts, flooding, landslides, and oil spills are occurring and understand changing dynamics day to day — especially in remote areas that are hard to reach.

Implement and track new policy initiatives:

Planet data opens the door to improving water security, enhancing conservation efforts, and understanding the impacts of new water use policies or infrastructure investments.

Planet makes it easier to translate raw data into actionable insights. We put analysis-ready data at your team's fingertips so you can redirect time, budget, and personnel toward mission-critical work.



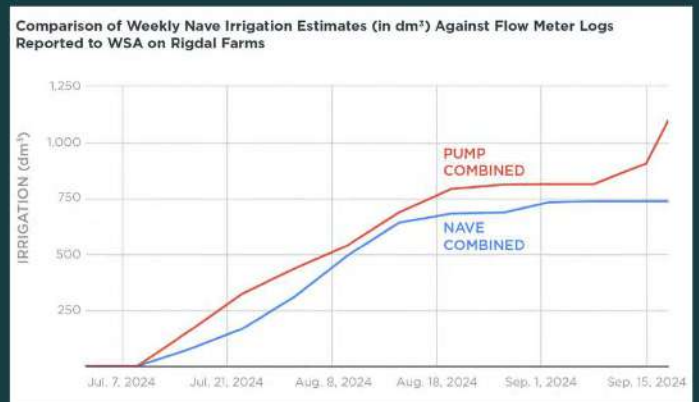
PlanetScope • Tucuruí, Brazil • August 30, 2024

SPOTLIGHT

Nave Analytics and Saskatchewan Water Security Agency

More than 81,000 acres have been developed in Saskatchewan since 2020, already reaching 95% of the province's 10-year growth target in just five years. To balance water management and economic growth, the Saskatchewan Water Security Agency (WSA) has been investigating scalable, cost-effective ways to monitor irrigation water usage. Flow monitors installed on some farms delivered high accuracy but required maintenance, installation of physical devices, and came with higher upfront costs. Smart irrigation control boxes in some fields yielded about 80% accuracy but still cost \$5–6 per acre, and accuracy was dependent on system calibration.

In the summer of 2024, WSA implemented a pilot project with Nave Analytics and Planet Labs to test a reliable and fully remote approach to water usage monitoring. Nave developed a hydrology data processing system powered by Planet data and soil hydrology models. According to WSA, satellite-based monitoring with the Nave and Planet solution proved to be the most cost-effective means of monitoring the province, cutting costs to \$4–5 CAD per acre per season, while delivering state-of-the-art accuracy. Field-level and regionally aggregated water usage agreed with ground-based measurements with approximately 85% overall accuracy, enabling new opportunities to cross-validate observations from ground monitoring systems. Nave expects to refine the model further with additional historical local data.



Credit: Adapted from Nave Analytics



Soil Water Content measurements • Saskatchewan, Canada
July 24, 2024

SPOTLIGHT

Map Impact and UK Space Agency

Map Impact set out to understand and improve water quality at the largest freshwater lake in the United Kingdom. Windermere has been plagued with Harmful Algal Blooms (HABs), and the team secured UK Space Agency funding to better understand the dynamics of these blooms. Since the region is often cloudy, public domain satellite data didn't tell the whole story. Three years of catchment-wide evidence indicated that Planet offered 5x the temporal resolution and 3x the spatial resolution over Landsat and Sentinel. Planet's frequent observations filled in the blanks in public datasets, giving Map Impact better visibility into the lake's dynamics over time.

This study challenged conventional wisdom that agricultural runoff causes HABs at Windermere. Instead, the study found that bloom events were strongly correlated with seasonal tourism. These insights give authorities a new avenue for addressing Windermere's water quality issues.

“Map Impact's report, focusing on one of the UK's most iconic and important lakes, demonstrates how this data can be used to give us clearer information about how the natural resources around us are changing, helping communities and decision-makers take tangible steps towards improving pollution levels and mitigating their impacts.”²

DR. PAUL BATE
CEO
UK SPACE AGENCY



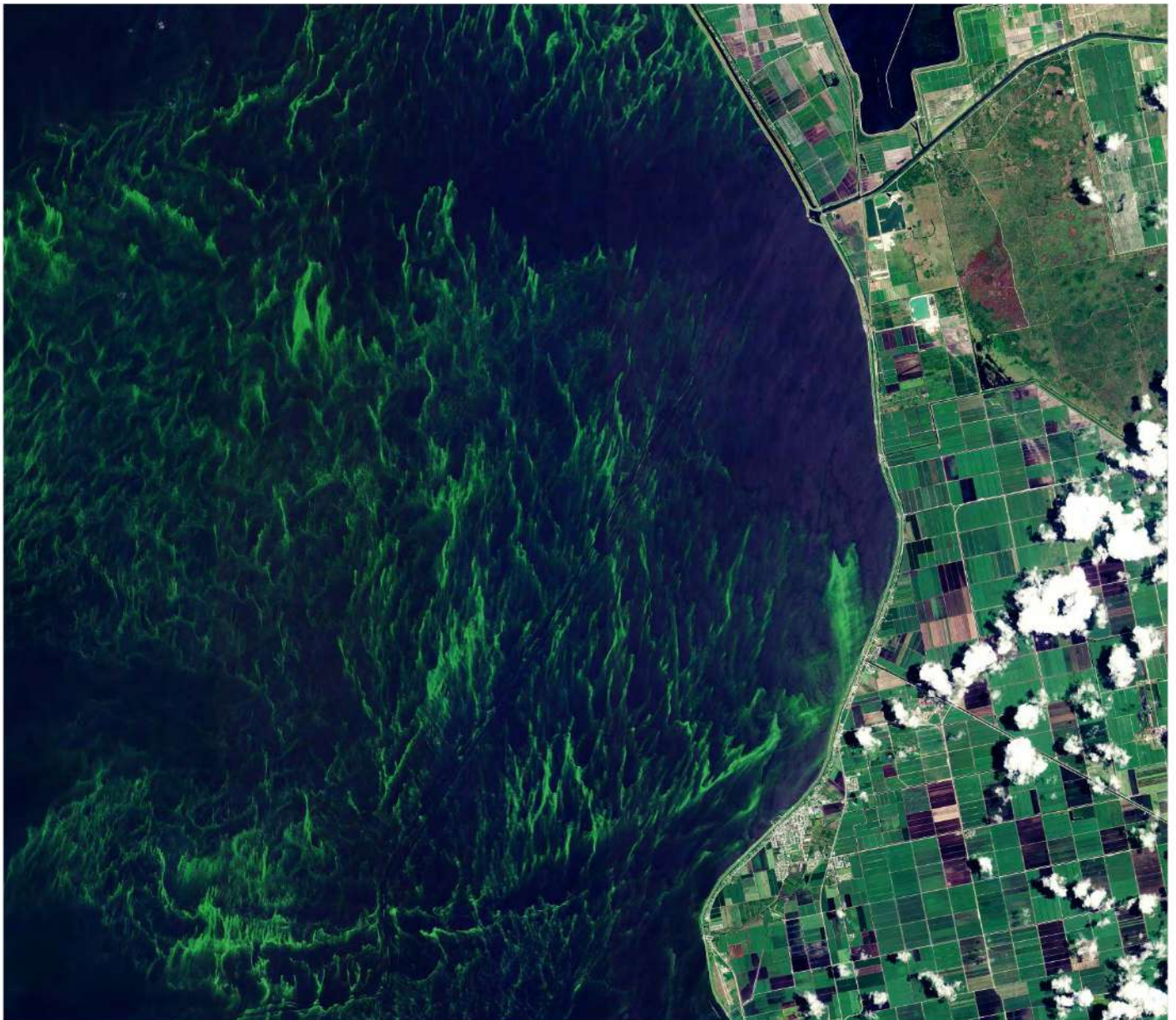
PlanetScope • Windermere, England, UK • August 10, 2022

² How Map Impact Changed the Narrative About Water Pollution at Windermere with PlanetScope, Planet and Map Impact, January, 2025

PLANNING FOR THE FUTURE

Predicted increases in water stress will affect every aspect of land and water management in the years to come. These changes will impact coastlines and waterways, shift priorities in land management, create new engineering challenges, and strain disaster management resources. Governments around the world are taking proactive measures to plan for changes in water resources and adapt to the growing risk of water-related disasters.

Planet delivers foundation data layers and analysis tools to help governments of all sizes plan for a future marked by unpredictability. Governments are leveraging satellite imagery and advanced analytics to monitor water bodies to assess water levels and quality, understand interactions between water systems and the built environment, and develop more sustainable and adaptive strategies to ensure water security, community resilience, and public safety for generations to come.



PlanetScope • Algal Bloom, Lake Okeechobee, Florida • June 12, 2023

SPOTLIGHT

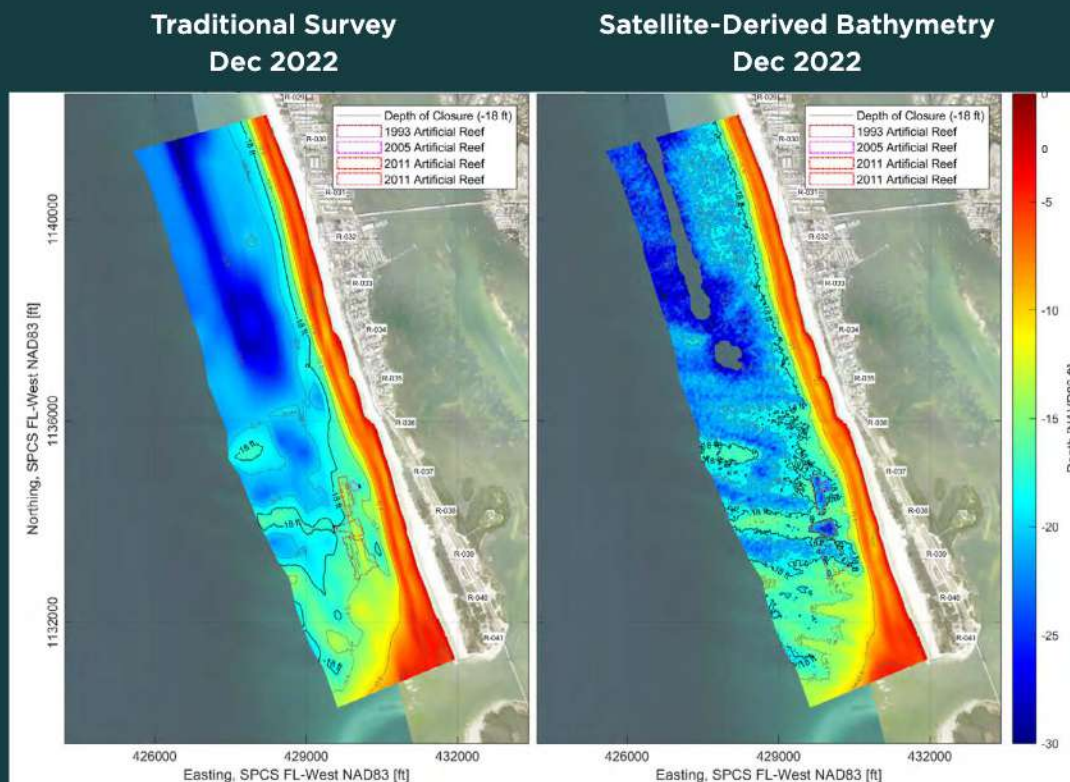
EOMAP and Coastal Protection Engineering

Rapid assessments of beach volume loss are crucial for quantifying losses and supporting disaster declaration decisions after storm events. Traditional post-storm assessments, which rely on visual estimates and nearshore data collected several days after the storm's passage, often have a significant margin of error. Thus, they may understate actual storm damage, potentially increasing long-term recovery costs and causing adverse effects on the local economy.

Satellite-Derived Bathymetry (SDB) offers an economical and rapid technique to quantify immediate changes in coastal water depth after storms. EOMAP, a leading provider of satellite-based environmental data solutions, worked with Coastal Protection Engineering (CPE) to conduct a **comparative study** of the coastal area before and

after Hurricane Idalia at Coquina Beach, Florida, in 2023. The researchers applied EOMAP's physics-based SDB to illustrate enhanced speed and accuracy compared to traditional beach profile surveys.

Near-daily satellite imagery from Planet offered a consistent source of cloud-free data immediately before and after the hurricane and for the comparative survey dates. According to the researchers, results of the proof of concept demonstrate physics-based SDB's potential to provide accurate assessments of beach erosion and accretion following a major storm event. These findings suggest that SDB can be a valuable tool for rapid post-storm assessments, aiding in initial economic loss estimates and enabling faster disaster declaration and response.



Application of physics-based Satellite Derived Bathymetry (SDB) to analyse nearshore change at Coquina Beach following Hurricane Idalia
Credit: EOMAP • 2024

Albada, E. Hartmann, K., Signorin, M., Benedet, L., Ryan, C. Bodinger, C., 2025) "Satellite derived bathymetry as a tool for rapid assessment of storm-induced impacts to beach fill", *Shore & Beach*, Vol. 93, No. 1, Winter 2025, <https://doi.org/10.34237/1009311>

SPOTLIGHT

New South Wales Department of Planning, Industry and Environment

The Department of Planning, Industry and Environment (DPIE) in New South Wales (NSW), Australia, is responsible for assessing and monitoring water use across the state. During droughts and floods, water planning experts need to track changes in on-farm water storage capacity. NSW is a large state, and the Department needed daily imagery and broad coverage to keep track of environmental events.

DPIE contracted with Planet to gain access to current and archive imagery. The resolution, cadence, and satellite data coverage empower them to gather the water use metrics necessary for ensuring compliance, from how on-farm storage is drawn and filled to where water is taken from local rivers. This visibility will help NSW make the best decisions regarding water restrictions, conservation, and enforcement.

“Because Planet is high resolution and has daily images, we can detect minor differences in the water surface area. We’re integrating Planet with LiDAR to combine surface area and storage capacity, which tells us about the changes in the volume of the water in storage. And throughout crop cycles, we can monitor how storage is filling up or when it’s drying out.”³

MUSTAK SHAIKH
PRINCIPAL FOR REMOTE SENSING
NEW SOUTH WALES

³ Estimating Volume Changes for Floodplain Harvesting in New South Wales, Australia, Planet, 2022



PlanetScope • Flooding, Forbes, New South Wales Australia • November 17, 2022

BRINGING PLANET TO YOUR AGENCY

Government programs work best when they work together with shared, trusted information. To support your innovation, transparency, and efficiency goals, we offer a straightforward enterprise-wide license that grants unlimited access to the Planet platform. Agencies typically choose this option to keep costs predictable and reduce administrative burden.

You can integrate Planet data into any workflow with our flexible integration options:

- **Extensive APIs:** Build custom integrations and data pipelines to power any Earth observation solution built in ArcGIS
- **Streaming Web Services:** Stream OGC web services directly from Planet into your own GIS applications
- **ArcGIS Pro Add-in:** Simply search, access, and analyze Planet's catalog of daily global imagery within ArcGIS Pro

Planet is invested in your success. We provide comprehensive end-to-end support, including expert consultation, professional services, and end-user training. Our goal is to ensure a seamless transition and maximize the return on your investment.

GLOBAL PARTNER NETWORK

Planet technology partners can help you achieve agency goals by building custom water management solutions tailored to your needs. Many of the partners in our worldwide network have extensive experience implementing last-mile solutions using satellite imagery.

Planet customers have commissioned custom water management solutions for wide-ranging projects, including:

- Protecting public health with rapid alerts about harmful algal blooms (HABs)
- Understanding the relationship between water turbidity and chemical pollution
- Measuring soil water content (SWC) to monitor irrigation water usage

The decisions governments make today about water infrastructure, water use, and development will set the stage for their ability to ensure sufficient water for industrial, recreational, and agricultural needs in times of water stress in the years ahead. Whether your work is focused on adapting to changing conditions or mitigating further change, we understand that communities are depending on you to make the best possible decisions. Planet data can help support you in this work.

Contact Us

Learn how Planet Can help you turn data into actionable insights.

Get in Touch

Find a Partner

Reach out to our partner network to explore custom solutions.

Meet Our Partners



PlanetScope • Phytoplankton Bloom, Vancouver Island, Canada • June 27, 2023

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