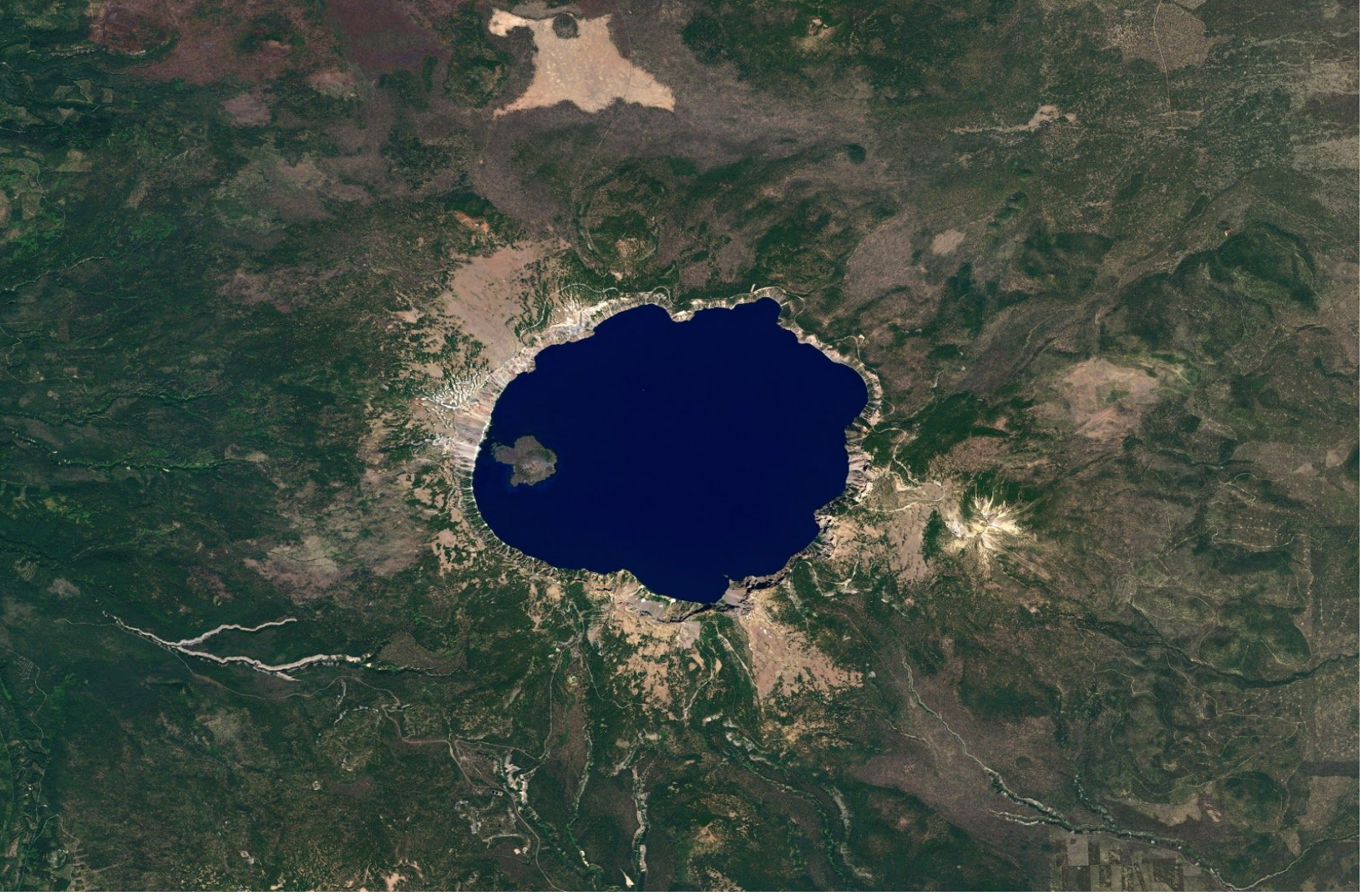

Crater Lake, Oregon USA
Source: Planet Labs Inc.

Planet Satellite Imagery and Services for the State of Oregon

Planet Labs, Inc.

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Bob Calvin, Account Executive
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PLANET.COM

January 2021

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PLANET OVERVIEW

Planet designs, builds, and operates the world's most capable constellation of Earth-imaging satellites. Planet's mission is to image the entire Earth every day and make global change visible, accessible, and actionable. Planet imagery is collected and processed in a variety of formats to serve different use cases, be it mapping, infrastructure monitoring, disaster response, precision agriculture, or temporal image analytics, to create rich information products. Easy and efficient access enables users to integrate same-day imagery into your processes with Planet's APIs and online tools.

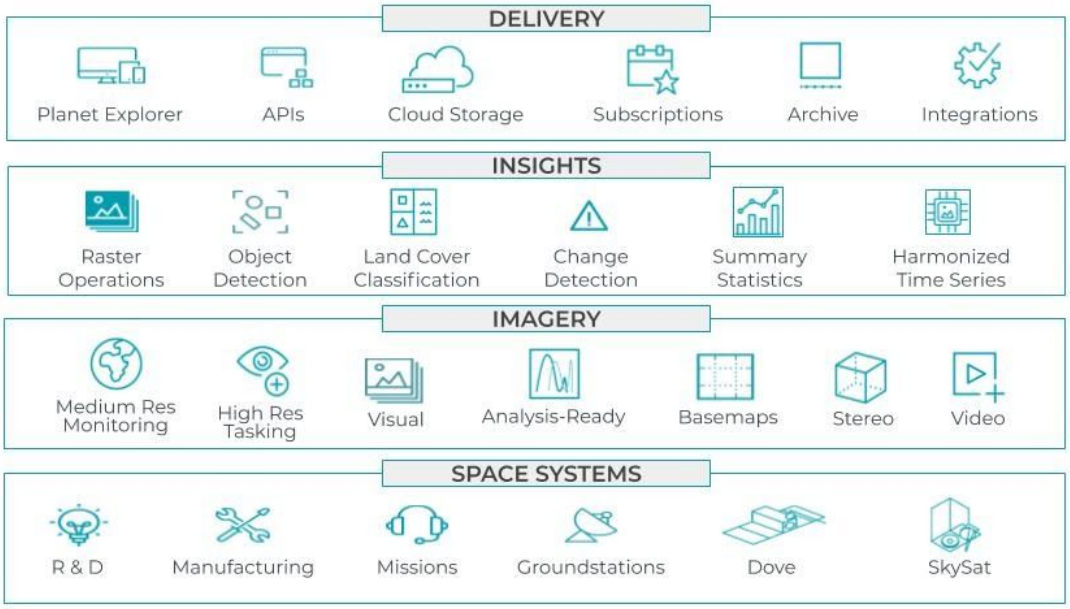


Exhibit 1: Overview of Planet offerings.

Planet operates two unique satellite constellations: PlanetScope and SkySat (**Exhibit 2**). By operating these diverse assets in both morning and afternoon crossing times, Planet provides unprecedented Earth observation data on a global scale. Planet has launched more than 300 PlanetScope Doves (15 generations or "builds") and 21 SkySats (2 generations) over a period of six years, to build a business on daily 3.7 m GSD monitoring with sub-daily 0.50 m orthorectified tasking. The data retrieved from these constellations are also supplemented by Planet's RapidEye imagery archive dating back to 2009.

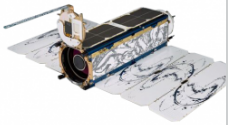
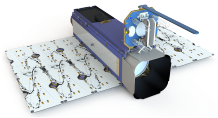
Constellation	SkySat	PlanetScope		RapidEye
		Dove 	SuperDove 	
Imaging Satellites	21	84	39	5
Launch Date(s)	2013-2021	2013-2018	2018-2021	2008
Orbit	450-630 km SSO (SkySat 1-15) 400 km; 53 deg inclination (SkySat 16-21)	475-575 km SSO (9:30 am - 11:00 am)	475-575 km SSO (9:30 am - 11:00 am)	630 km SSO (10:30 am)
Product Stage	Stage 3 - Operational	Stage 3 - Operational	Stage 3 - Operational	Retired - Archive only
Native Ground Sample Distance (GSD) (nadir)	Pan: 0.65-0.86 m MS: 0.81 - 1.0 m	MSI: 3.7 m	MSI: 3.9 m	MSI: 6.5 m
Swath Width	5.9 km	25 km	35 km	77 km
Revisit rates	Sub-Daily tasking	Daily monitoring		N/A retired
Radiometric resolution	Visual: 8 bit Analytic: 16 bit	Visual: 8 bit Analytic: 16 bit	Visual: 8 bit Analytic: 16 bit	Visual: 8 bit Analytic: 16 bit
Daily Capacity	400,000 sq km	Over 200M sq km		6.5M sq km
Spectral Bands	RGB, NIR, pan	RGB, NIR	6 VIS+NIR+Red edge	RGB, NIR, Red edge
Collection types	Point Collect Strip Collect Area Collect Stereo Video	Basic Scene Ortho Scene Ortho Tile	Basic Scene Ortho Scene Ortho Tile	Basic Scene Ortho Tile

Exhibit 2: Planet's product pipeline is supplied by the PlanetScope and SkySat satellites. Planet also maintains the RapidEye imagery archive following its retirement in 2020.

PLANET AND THE STATE OF OREGON

Planet currently has a working relationship with the State of Oregon and is interested in expanding this relationship by pursuing additional opportunities to meet some of Oregon's challenges. Possible areas of focus for Planet imagery and data includes, but is not limited to, forestry, aquatic conservation and biodiversity, disaster response, agriculture, driving compliance, and more.

Planet's unique temporal cadence enables the State of Oregon to access daily global imagery and key remote sensing data to proactively monitor activities throughout the entire state. Our unique datasets provide an objective source of truth for the State of Oregon to empower precise tracking of change on the Earth's landmass for the benefit of scientific analysis, situational awareness, as well as social and economic trends.

Planet's unique features:

PlanetScope - Daily, Medium-Resolution Monitoring

- Proactive monitoring system collecting imagery by revisiting every location on the planet everyday without being tasked
- Passive monitoring services across a distributed satellite network results in a consistent source of truth for analysis-ready data every day
- Temporal Basemaps at weekly, monthly, quarterly, or yearly intervals

SkySat - Rapid Revisit, High-Resolution Tasking

- High revisit collections globally; and the ability to capture a single Area of Interest (AOI) an average 5-10 times per day.
- Morning and afternoon crossing-time capacity for data capture over targeted AOI
- High-Resolution Basemaps provided for a specific AOI one-time, or at weekly and monthly intervals.

Both imagery products can be accessed through the Planet Platform and Planet's unique API that act as intuitive search and download tools.

RELEVANCE TO THE STATE OF OREGON GOALS

Planet's data is currently empowering state and local governments around the world to make informed decisions providing situational awareness on issues that matters most to them and their local communities. Planet can further assist the State of Oregon to meet its priorities by providing insights within the following areas.

FORESTRY

Oregon offers a wealth of forest resources covering over 30.5 million acres - almost half of the state. High-resolution satellite imagery helps improve the accuracy and consistency of forest area estimation by providing a clearer picture of land cover and land use over a given area. Satellite imagery can help update forest maps, including statistics on forest changes or forest damage information systems. Planet data can also be used for early detection and monitoring of outbreaks through the use of the near-infrared and red edge spectral channels, which together show early onset of disease and where it might spread.

Planet imagery also offers a unique opportunity to leverage high-frequency, high-resolution tip and cue capabilities to more efficiently monitor the health of forests. Planet's medium-resolution monitoring solution allows for a consistent view of a given area of interest, to give a "tip" to users that there has been new activity. Users can then "cue" a high-resolution SkySat to zoom in on the area for a closer look.

Weyerhaeuser leveraged SkySat high-resolution imagery to inspect over 250K acres of harvested forest stands across Oregon's Pacific Northwest. SkySat imagery delivery was 10x faster than aerial fixed wing imagery which Weyerhaeuser traditionally used to acquire photography of their harvested forest areas. Aerial imagery can typically take several months and require a full-time coordinator to oversee scheduling which often changed due to weather and cloud coverage. Using SkySat saved Weyerhaeuser in costs, increased their efficiency in obtaining timely forest asset information and enabled them to dedicate fewer resources to their forest inspections.

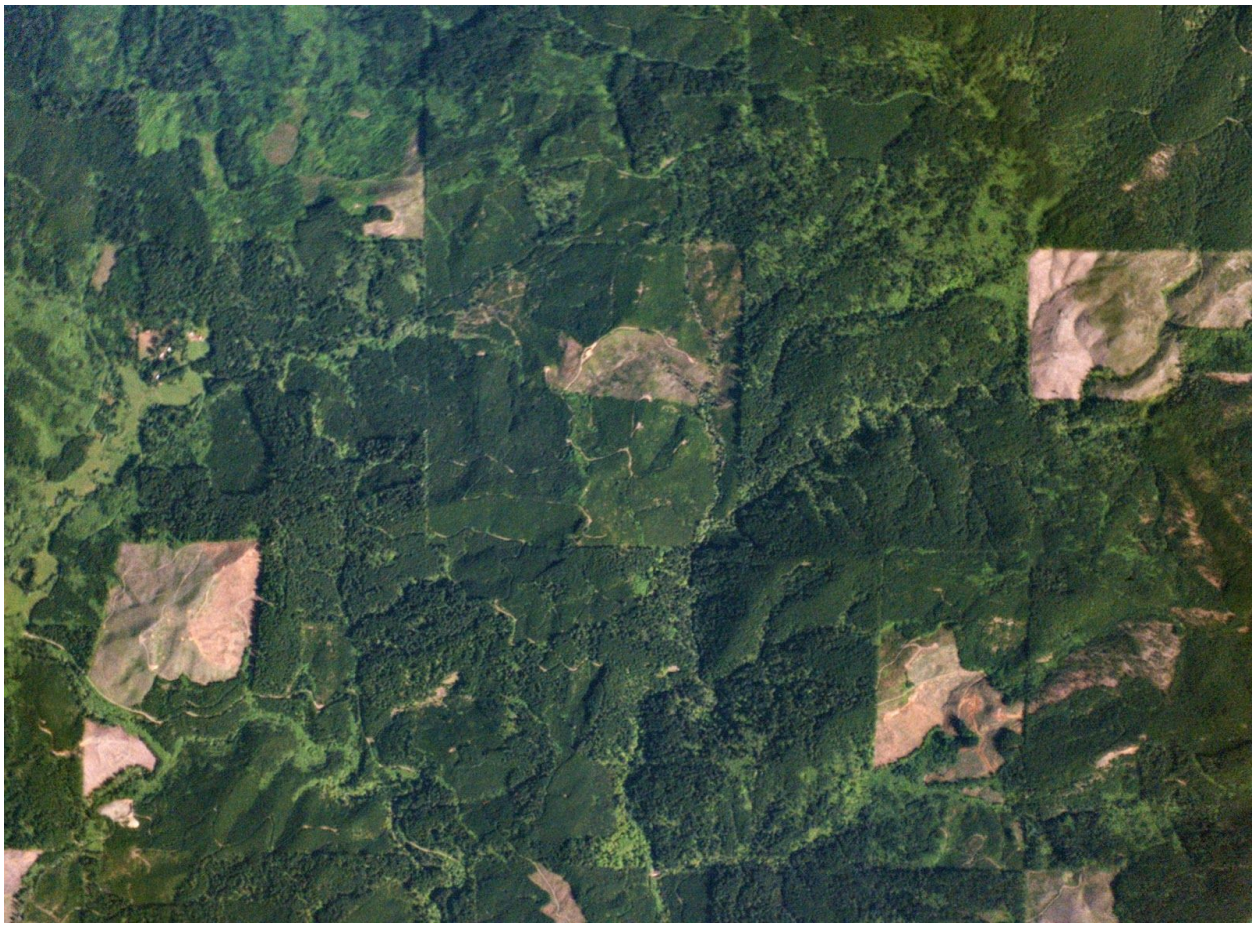


Exhibit 3: PlanetScope imagery of logging near Corvallis, Oregon

Exhibit 3: SkySat time-lapse imagery of forest in Coos County, Oregon (Top: October 2018, Middle: January 2019, Bottom: June 2019)

AQUATIC CONSERVATION AND BIODIVERSITY

Threats to coastal marine ecosystems impact our livelihood directly since we rely heavily on these ecosystems for resources such as food, recreation, transportation, and much more. The smallest change to coastal biodiversity can cause a ripple effect of habitat loss which can take years to recover. It is important for key decision makers to have access to near-daily satellite information in order to detect changes, respond to ecosystems threats, and adapt resource management strategies.

Tracking and management of kelp and eelgrass beds are crucial to marine biodiversity along the Oregon coast. Kelp beds provide one of the most productive marine ecosystems and are key to supporting Oregon's fisheries and habitat. Their decline along the Oregon coastline over the past 5 years has been difficult to quantify mainly due to cost-prohibited aerial surveys.

Eelgrass provides nursery habitat for crabs, salmon, and other wildlife that support coastal fishing communities. Eelgrass also acts as a buffer against ocean acidification by pulling carbon dioxide out of the water during photosynthesis. The decline of eelgrass threatens marine ecosystems and can cause great ecological imbalance within bays and estuaries along the Oregon coast.

Planet's unique temporal cadence will allow the State of Oregon to map and monitor floating kelp and eelgrass beds by giving the State access to near-daily imagery during the peak growing season. This data will help management teams make data driven decisions and push for conservation efforts.

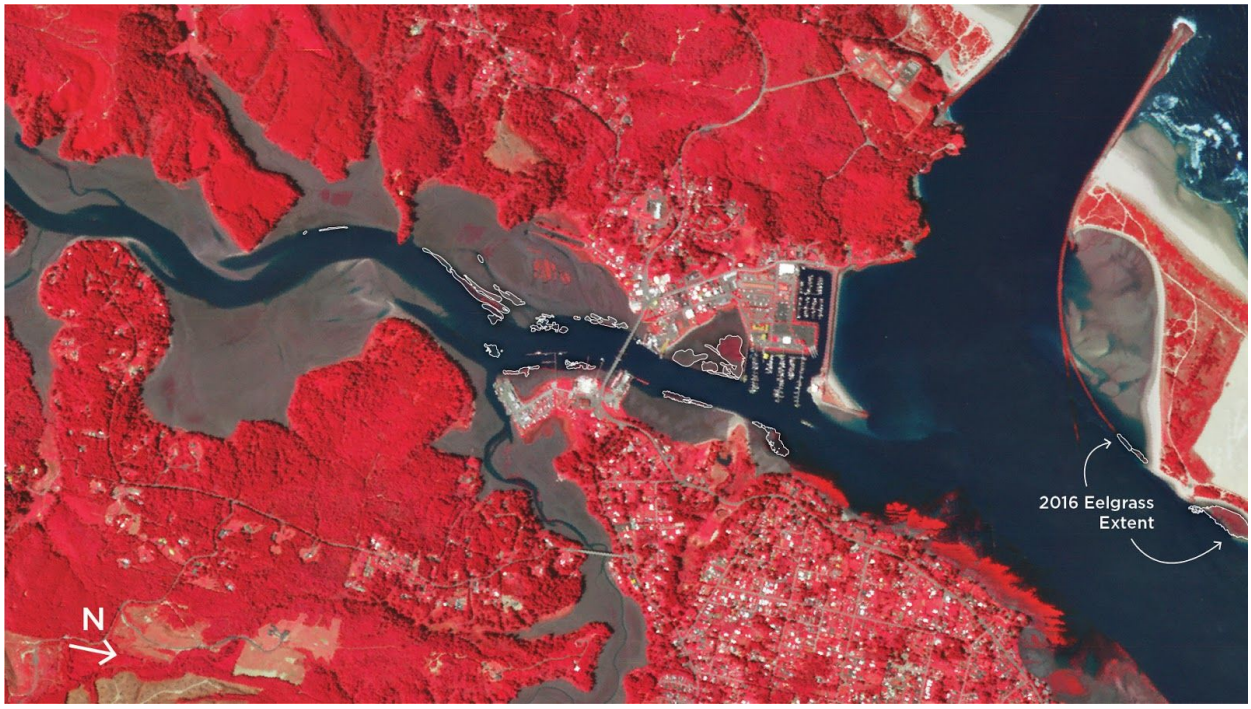


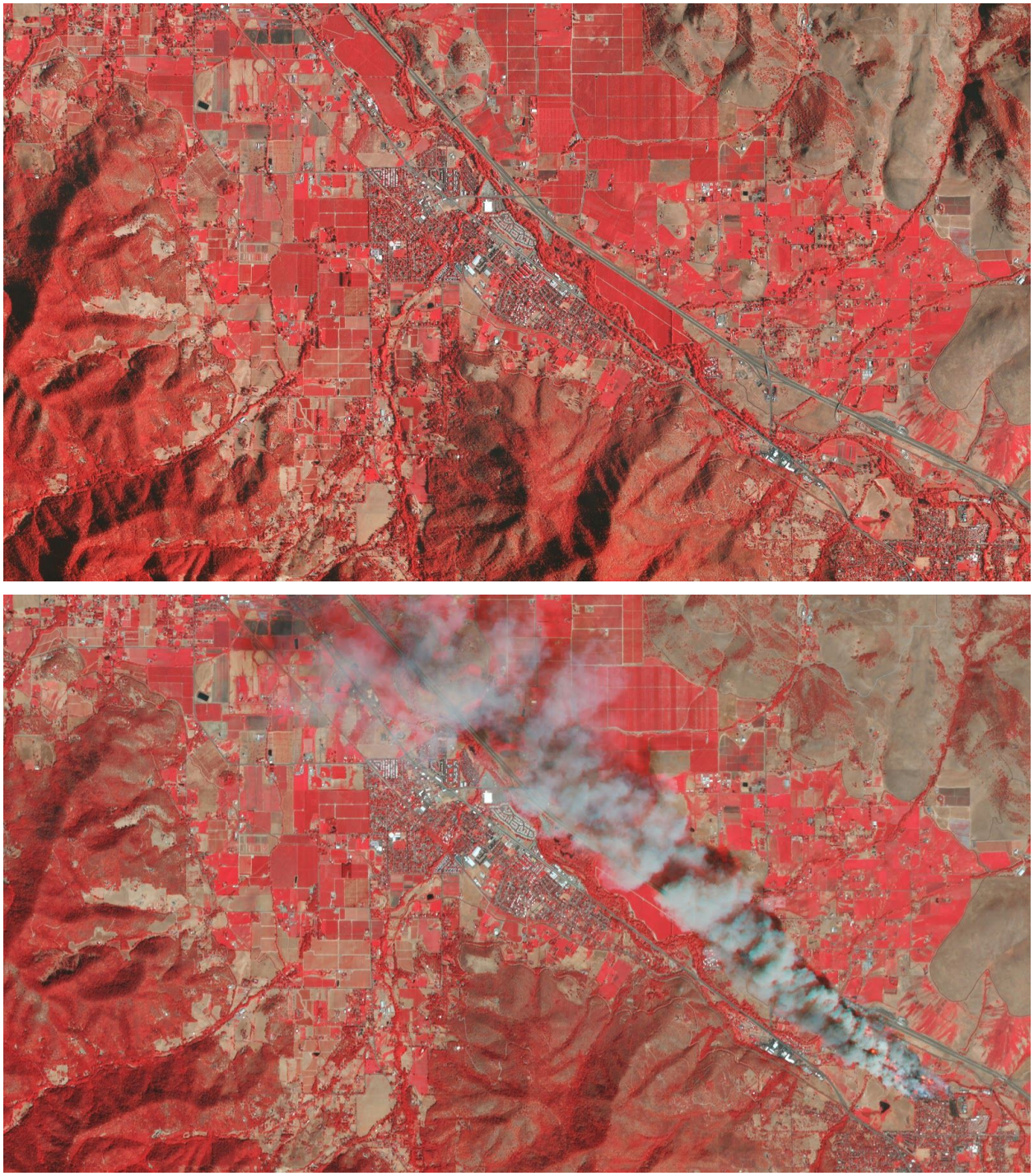
Exhibit 3: This false-color PlanetScope image shows the South Slough Reserve in Coos Bay, Oregon at low tide on April 13, 2020. Overlaid is the distribution of eelgrass in the reserve as reported in 2016.

DISASTER RESPONSE

In the event of natural and environmental disasters, for humanitarian aid activities and for civil security, the provision of up-to-date and accurate maps is crucial. Local and international decision-makers, situation centers, and aid organizations need an up-to-date view of the crisis area for effective management of their measures, usually within a few hours of the occurrence of a disaster.

Planet's automated data pipeline and cloud infrastructure will ensure that the State of Oregon has access to the information needed to address unanticipated disasters quickly and efficiently. The most recent pre- and post-event imagery enables informed action and prioritization of resources where they are needed most.

With Planet's frequent monitoring, high-resolution tasking capabilities, and continuously refreshed archive, the State of Oregon can analyze before-and-after imagery to assess damage and efficiently deploy resources, plan and monitor operations as events unfold, and improve modeling and mitigate disaster risk exposures.



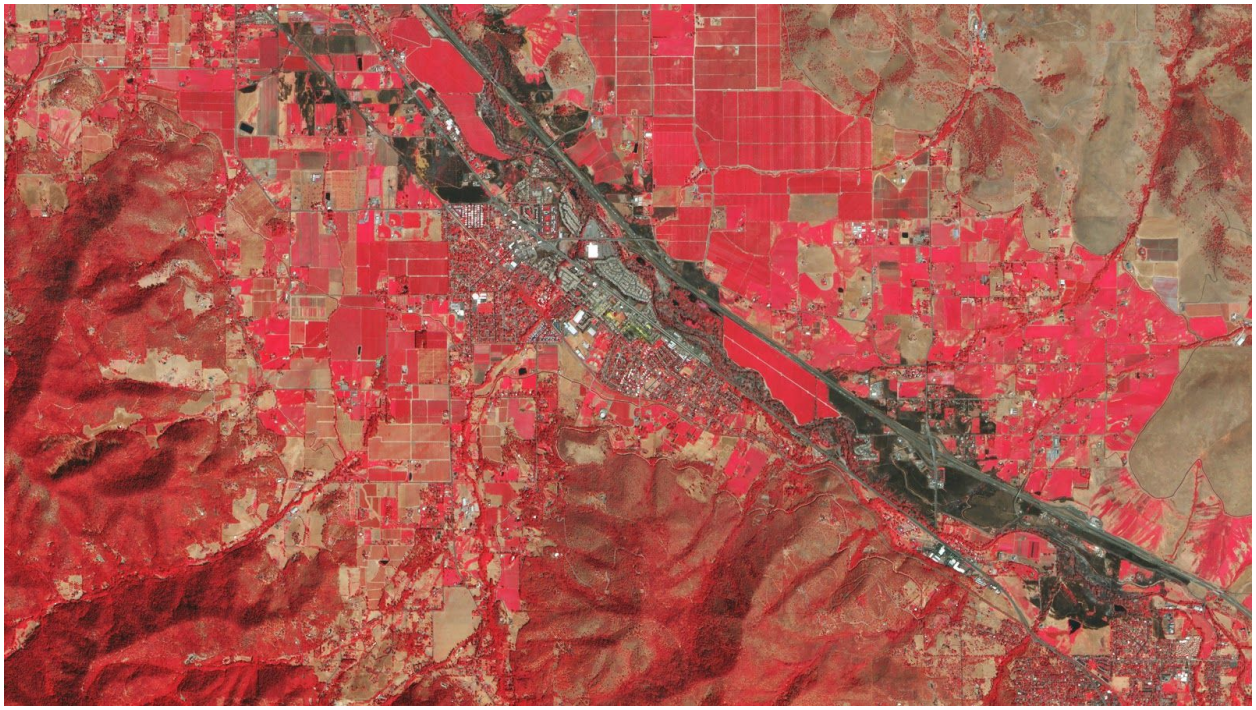


Exhibit 3: These three false-color PlanetScope images shows the before, during and after of the Almeda Drive fire in Ashland, Oregon (September 7-9, 2020).

AGRICULTURE

Tracking agricultural activity is important for food security and staying ahead of widespread outbreaks of disease, pests, and drought. There are a number of sources to acquire satellite imagery for agriculture, however a scalable, high-frequency data source is required for reliable in-season monitoring over large areas of land as well as help quantify bare lands. Planet data and analytics can play a critical role in helping the industry develop precision agriculture solutions that help farmers make more proactive, targeted decisions. It can also help states regulate and monitor agricultural water rights.

Planet's global, daily imagining capability means we can capture fields across the entire country on a frequent basis. Because Planet images in RGB and near-infrared spectral channels, users can detect changes in crop health before irreparable damage is done. Early indications of change help direct scouting efforts, improve yields, and save farmers time and resources.

DRIVING COMPLIANCE

It is difficult for State departments and law enforcement to monitor large areas of land, especially in remote regions where infractions cannot be detected easily. A lack of visibility in these areas prohibits enforcement agencies from uncovering infractions, recovering fines, and protecting environmental resources from unsanctioned infrastructure and projects.

Planet's broad area coverage, high-frequency monitoring solution, and high-resolution tasking allows for better land management and infrastructure monitoring. Additionally, agencies can leverage Planet's extensive medium- and high-resolution archive to understand how land use has changed over time.

Oregon's surface mining sites provide essential goods and services, from construction materials to energy sources, used to power day-to-day activities. Planet imagery may provide convenient conditions for comprehensively, rapidly, and continuously identifying environmental factors and monitoring environmental changes in mining areas. Additionally, it can also help the State of Oregon with monitoring the expansion of mining activities and permitting compliance.

Exhibit 3: SkySat images of the Tonquin Quarry in Tualatin, Oregon. These images show the growth of a permitted basalt mine. (Top: October 2018, Bottom: June 2020)

PLANET PILOT PROGRAM: APPLICATIONS & IMPACT

Planet recently completed a pilot program with various departments across the State of Oregon. The pilot program gave participating departments access to Planet data and imagery to use within their defined use cases.

FORESTRY

Department of Forestry

Use Case	Hardwood Classification
Application	Planet's archive imagery and near infra-red and visible bands capabilities acted as predictor data to classify trees sorting them into the following categories: Hardwoods, Mature Hardwoods, Conifer-Hardwood Mix, Mature Conifer, Young Conifer, Regeneration Conifer.
Impact	This project enabled a landscape scale remote sensing approach to forest classification that can offer forest management a more granular view compared to the current ODFs programmatic forest inventory option. While ODF's programmatic inventory has detailed information on tree species composition and abundance the data are only aggregated to the stand level. Planet's imagery allows for fine scale classification at a 3X3 meter resolution.

AQUATIC CONSERVATION AND BIODIVERSITY

Department of State Lands - South Slough

Use Case	Eelgrass Mapping
Application	Understanding changes in eelgrass beds requires archive data and baseline maps of current conditions. Planet imagery and archive was used to delineate several eelgrass beds in the years between 2005 and current time. The data documented major die-offs of eelgrass beds in portions of the Coos estuary over a period of 1.5 years.
Impact	Normally, the department spends an average of $40,000-$50,000 on aerial imagery which requires 1) grant funding, 2) hiring a consultant to collect the imagery, and 3) an average of 1.5 years from grant writing to end product.

	Additionally, images are only collected at very low tides which only occur a few dates out of the year. This limited time frame requires great coordination to ensure that aerial imagery is captured at the right time. Planet imagery, on the other hand, is already collected so the department can look through archive data that corresponds to dates and times at low-tides.

Department of Fish and Wildlife - Marine Resources Program

Use Case	Kelp Mapping
Application	Kelp has seen a recent dramatic decline on the West Coast in the past 5 years due to climate and other factors, and there is limited quantitative data to monitor the decline in Oregon. These data are necessary to adapt our resource management strategies to account for the decline. Conventional aerial surveys of Oregon kelp beds would cost $40,000 - $50,000 or more per year, and currently the Marine Resource Program does not have the resources to pay for these.
Impact	Planet's near-daily images allows exploration of several images during the peak growing season to select the image with the best survey conditions. This provides more confidence that the survey results represent the true kelp abundance and ensures better year-to-year comparison of the kelp canopy. This same procedure can be done with multiple aerial surveys over several days, but that would be cost-prohibitive.

DISASTER RESPONSE

Rogue Valley Council of Governments

Use Case	Wildfire
Application	Planet's frequent imaging capabilities allowed for the

	Rogue Valley Council of Governments to track and review imagery for the Almeda Fire in September 2020. The data helped the department understand fire path and get a handle on destruction before other data sources became available.
Impact	Daily imagery of fires enables the Rogue Valley Council of Governments to see the before, during, and after impacts of wildfire without the need to order and pay for separate costly aerial flights.

AGRICULTURE

Department of Agriculture - Ag Water Quality

Use Case	Irrigation Conditions, Riparian Condition Mapping
Application	Riparian conditions: The Ag WQ Program needs to quantify conditions along agricultural streams to determine status and progress toward conditions that protect water quality. Irrigation type: Identifying irrigation type can help determine pollution of surface water and groundwater. Recent imagery is required in both cases to help quantify current conditions. The program currently relies on out-of-date publicly available imagery which can be 1-3 years old.
Impact	Planet's ability to provide monthly Basemaps and SkySat high-resolution imagery gives the department access to current data and will also reduce staff time spent on fieldwork and other costs related to travel.

Department of Agriculture - Plant Program Area - Hemp & Noxious Weed Programs

Use Case	Hemp Field Conditions

Application	Planet data was used to identify whether or not fields stayed bare to determine if crops were bigger than declared on applications. During the pilot program, Planet's data uncovered 15 unregistered greenhouses prompting an inspection of a second grow site owned by the same business. The second grow site also uncovered a number of unregistered greenhouses.
Impact	Using Planet imagery in the hemp program would increase efficiency and prevent the need for staff to travel to specific sites to verify crop status.

Department of Agriculture - NRPA

Use Case	Bare Ag Field Mapping, Tile Drained Fields
Application	Bare Ag: Planet imagery was used to quantify the amount of bare agricultural land during the winter months. Tile Drained: The imagery was successful in determining what agricultural fields have tile drains in place.
Impact	Access to Planet's high-resolution imagery will reduce time needed to visually assess thousands of acres. It could potentially save 120+ hours of staff time to determine the amount of bare agricultural land.

DRIVING COMPLIANCE

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES - MLRR

Use Case	Mining Permit Conditions
Application	Oregon is a big state and responding to a complaint can cost hundreds of dollars in staff time and travel. The department receives regular complaints from neighbors of mining operations related to mining encroachments or start-up of illegal mining operations. The only way to confirm or deny these allegations is to visualize the current impacts. Planet Labs near-daily imagery was

	crucial in providing accurate information to concerned citizens quickly. This greatly increases efficiency in dealing with complaints and reduces unnecessary trips to the field. Planet's imagery was also used to identify sites that are likely in violation for prioritization of site visits.
Impact	The MLRR program currently has a staff of 11 people (including management and administration) and very limited resources. Oregon has over 900 mining sites across the state that hold permits and an unknown amount that do not hold permits and should. Access to Planet data and imagery will save staff time and costs related to travel and site inspections, increasing the program's ability to fulfill necessary regulatory duties.

WATER RESOURCE DEPARTMENT - KLAMATH FALLS WATERMASTERS OFFICE

Use Case	Irrigation Conditions
Application	Planet provided daily high-resolution images of wet and dry fields that became a data source used by the Klamath Falls Watermasters Office to spot illegal irrigation. The images were also used to verify green fields and causes of it depending on time of year. The traditional method for spotting illegal irrigation required driving or boating in order to locate wet fields that should be dry. In some instances, locating illegal irrigation can take several days of searching just to gather enough evidence to further investigate potential cases.
Impact	Planet imagery will help the Klamath Falls Watermasters Office to protect instream water rights by helping their limited staff locate illegal irrigation in a faster and more efficient way.

TESTIMONIALS

"This imagery is a game changer for mine site compliance in the state of Oregon. We have a small program, but mining can have big impacts. Any tools that increase efficiency are immensely valuable. This imagery will absolutely increase efficiency, and by prioritizing site visits will ensure costs are being expended where they are needed most." - Cari Buchner, DOGAMI

"I think this would be a huge asset for many Department of State Lands programs. South Slough was the only department part of the use case pilot study; however, many other divisions within DSL are very excited about the prospect of using Planet imagery for their work (which includes wetland delineation, range management, and regulatory and permitting aspects, among others)." - Jenni Schmitt, Department of State Lands, South Slough

"Our detailed analyses of the Planet images are not completed yet, but so far, the imagery looks like it can provide an inexpensive way to fill some key data gaps important in marine resource management, especially as climate change is increasing the pace of resource changes in the marine environment. Continued access to the Planet imagery would help enable us to make the best management decision concerning Oregon's marine resources into the future." - David Fox, Department of Fish and Wildlife, Marine Resources Program

WORKING TOGETHER

Planet pairs persistent global monitoring with low latency tasking to deliver early intelligence on shifting environmental, disaster, and geopolitical landscapes. Through the innovative use of Earth observation data, combined with Planet's professional services, Planet can provide the State of Oregon a combination of **high- and medium-resolution imagery, archive data, and quarterly analytic feeds**.

These would enable the State of Oregon the ability to identify, monitor, and analyze changes and activities across the state. Planet's offering could enable the State of Oregon to obtain timely status updates, and make informed decisions over key areas of interest (AOIs). Through the use of Planet products, the State of Government will be benefiting from:

- **Timely and objective information**. Immediately view AOIs and understand events, uncover relevant insights, and make informed decisions.
- **Quick and easy access**. Extract information and seamlessly integrate with the Planet platform and APIs. Build processes and tools into your workflows conveniently, without having to task a satellite.

- **Customizable subscription.** Choose a flexible monitoring plan that fits the scope.

Planet welcomes a discussion with the State of Oregon about our solutions and how we can partner together to address Oregon's unique challenges.

APPENDIX

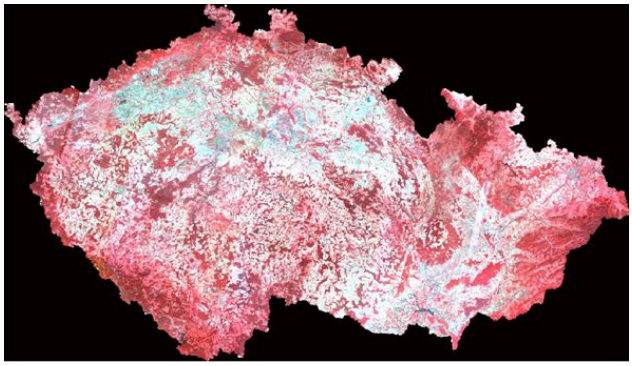
GLOBAL USE CASES

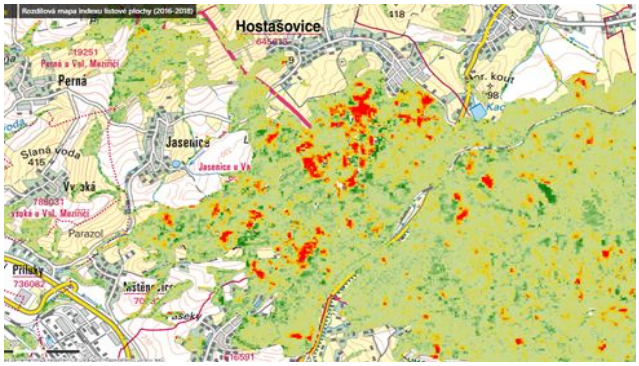
FORESTRY

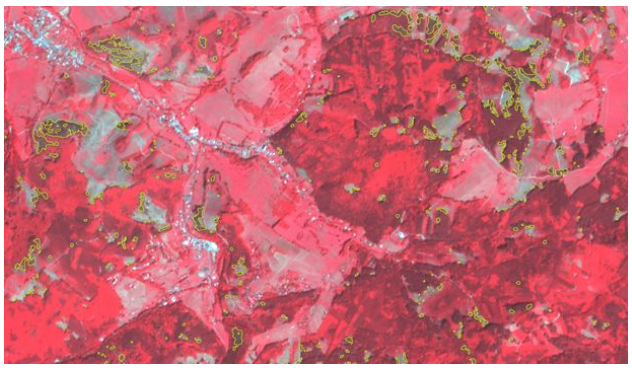
Bark beetles have killed an unprecedented number of trees. The infestation devastated 18 million cubic meters of forest in the Czech Republic due in part to very dry summers brought on by the effects of climate change. Forest managers needed to identify impacted dead forest stands and remove trees to mitigate spread. The Forest Management Institute (FMI), established by the Ministry of Agriculture of the Czech Republic, leveraged Planet NIR imagery to determine the latest dead forest stand and make derivative data available to the public. Sentinel-2 and National aerial data provides additional filters.

A. Temporal Resolution: Planet's recency and frequency enables users to act more quickly on rapidly spreading disease
B. Spatial Resolution: Planet's imagery offers rear-individual tree level, important for pests as outbreaks start small

The findings helped determine 200M EUR worth of timber damaged (~16,000 hectares) and resulted in 1) new legislation proposed for forest zoning and commercial permits and 2) the creation of a public portal for all national forest stakeholders.







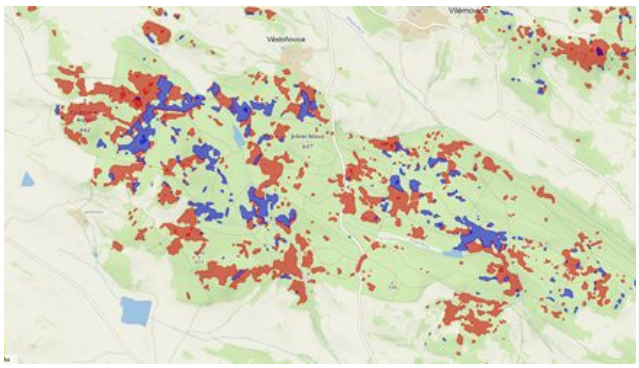


Exhibit 4: Clockwise from top left: 1) Create NIR mosaic of Sept 2018 from Planet Data, 2) Use Sentinel-2 and National aerial data to identify candidates and do NDVI analysis, 3) Locate infested forest stands, 4) Make derivative data available to public.

AQUATIC CONSERVATION AND BIODIVERSITY

The Florida Fish & Wildlife Conservation Commission needed more frequent monitoring of aquatic plant growth over large lakes in Florida including Lake Okeechobee. They used Planet archive to review frequency of recent outbreaks, and Planet monitoring for early detection of any potential future outbreaks. Results included earlier detection of plant growth, time and cost savings from proactive versus reactive responses, long-term sustained local revenue from tourism that is attracted to fishing and wildlife, and cleaner drinking water for lakes that make up South Florida's backup water supply.

Exhibit 5: Lake Okeechobee, Florida, USA

DISASTER RESPONSE

The California Office of Emergency Services (CalOES) used Planet imagery to monitor active fire lines, assess smoke associated air quality, and estimate overall damages after two major fires broke out within 24 hours of each other during a severe wind event in November 2018. This event was one of the most deadly and destructive fires in California history and called for

the need for real-time situational awareness to coordinate a state-wide response. Planet imagery and data resulted in faster tracking and response time as the fire changed its course, increased situational awareness of the entire affected area to better deploy scarce resources, and better coordination and application for federal assistance.

Exhibit 6: Camp Fire imagery November 2018

AGRICULTURE

The Maharashtra Remote Sensing Application Centre provides agriculture monitoring to the entire state of Maharashtra, India - more than 7.3 million km sq - an area difficult to capture. Few existing satellite data sources are able to provide high frequency data at a state-wide scale. Planet provides a scalable, high frequency data source for in-season agricultural monitoring covering the entire state. Results include more accurate estimates for crop and yield forecasting and agricultural insurance related activities as well as improved food security from earlier reaction to widespread outbreaks of disease, pests and weather.

Exhibit 7: Punjab, India, SkySat, RBG, 19 September 2020

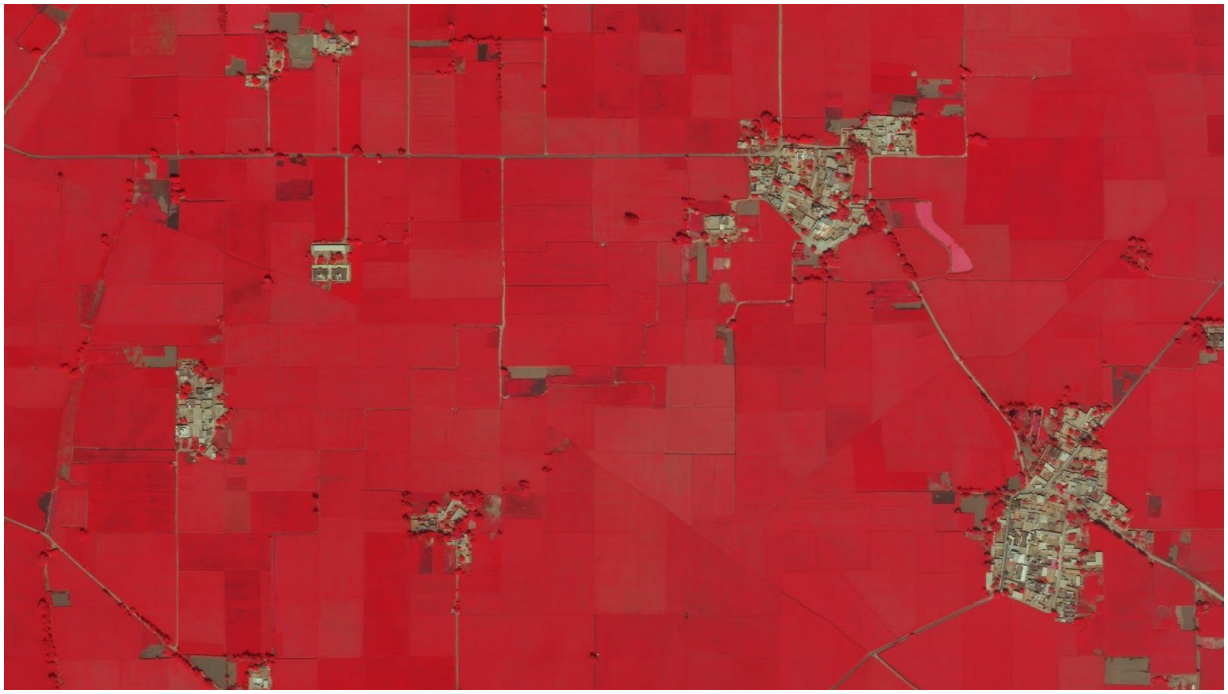


Exhibit 8: Punjab, India, SkySat, CIR, 19 September 2020

DRIVING COMPLIANCE

The Humboldt County Planning and Building Department is responsible for protecting public health, safety, and welfare. The department achieves this through building permit

review and inspections consistent with California model codes. However, the county recently discovered an urgent need to easily identify building code violations outside of routine inspections and resident reports.

Humboldt used SkySat imagery to monitor the county for land use and building infractions, the largest being greenhouses to grow cannabis. The county proactively searches for non-permitted buildings and changes, allowing officers to identify infractions and seek compliance at a much greater rate. Planet delivers high resolution, cloud-free digital imagery at a sub-one meter resolution on a routine cadence. The county went from being able to handle about 60 infractions per year to 700, improving resident safety and compliance.

Exhibit 9: SkySat Images of grow houses in Humboldt County, California.