



+ SURFACE REFLECTANCE BASEMAPS

Timely, complete, & analysis-ready mosaics

Power your applications with accurate, consistent, and recent imagery mosaics over broad areas of interest - without the heavy lift. Surface Reflectance Basemaps leverage advanced image processing techniques on PlanetScope imagery to remove atmospheric effects, optimize pixel accuracy, and ultimately empower robust quantitative analysis.

Current

Keep your monitoring tasks up-to-date with basemaps at weekly, biweekly, monthly, or quarterly intervals. The frequent collection of the PlanetScope constellation enables you to choose narrower timeframes without sacrificing coverage.

Complete

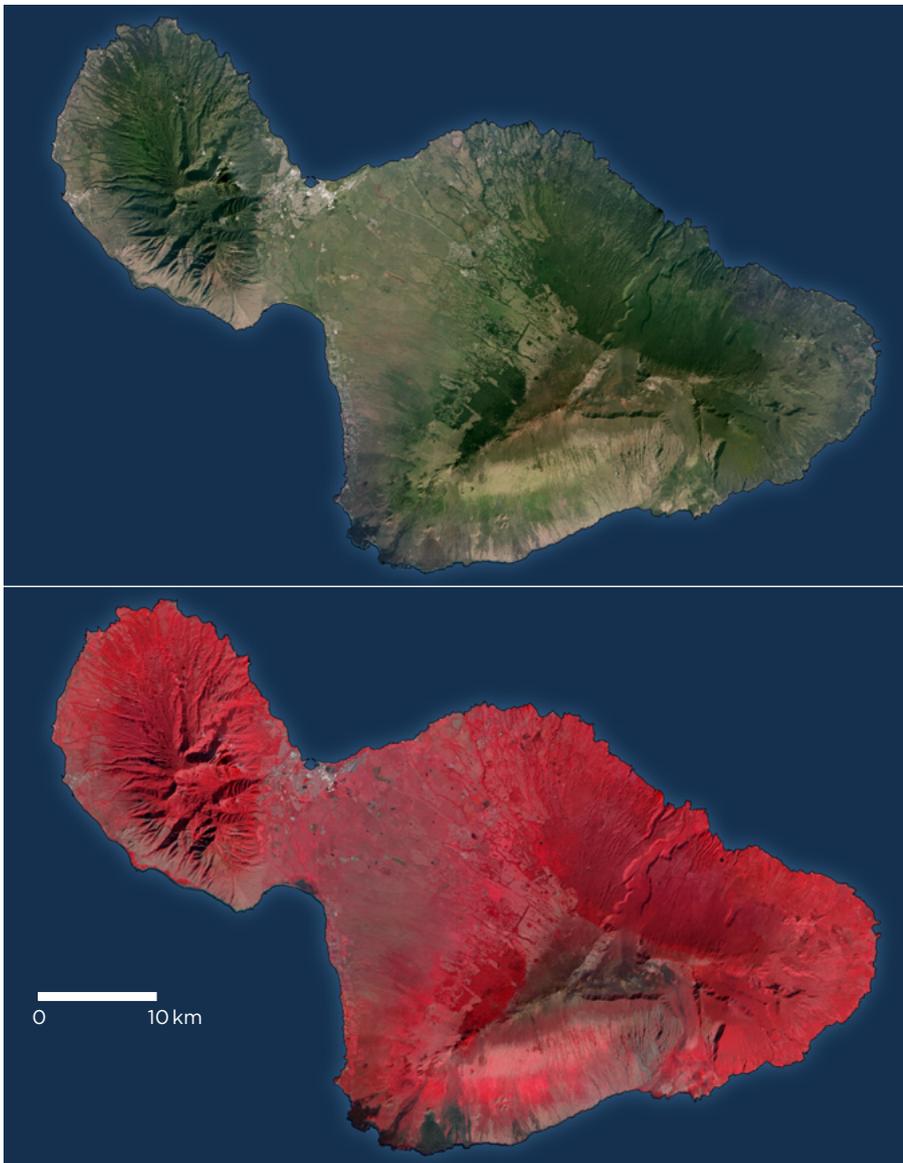
Full coverage for your areas of interest - from the regional, national, and global level. The frequent collection of the PlanetScope constellation allows us to select optimal, cloud-free scenes for Basemap creation.

Analysis-Ready

Suited for a variety of quantitative operations, including NDVI, EVI, NDWI, NDRE and more. Surface Reflectance Basemaps provide consistent spectral data across time and broad areas of interest, so you spend less time processing and more time deriving insights. Surface Reflectance Basemaps can be raw surface reflectance or normalized to Landsat or Sentinel-2.

Efficient Delivery

Basemaps are pre-processed into regularly gridded GeoTIFFs for download via the Planet API or Planet Basemap Viewer. Basemaps are also made available for integration into your workflows via WMTS or web tiles.



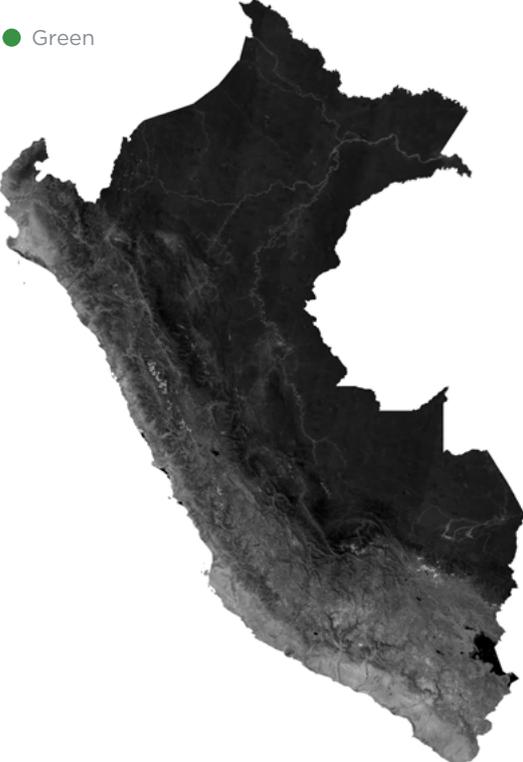
True color and false-color infrared (near infrared, red, green) Surface Reflectance Basemaps, compiled from January–March 2018, reveal Maui’s complex land use patterns and diverse natural biomes.

Surface Reflectance Basemaps provide four calibrated bands, including near-infrared, enabling a broad range of analytic applications.

● Red



● Green



● Blue



● NIR



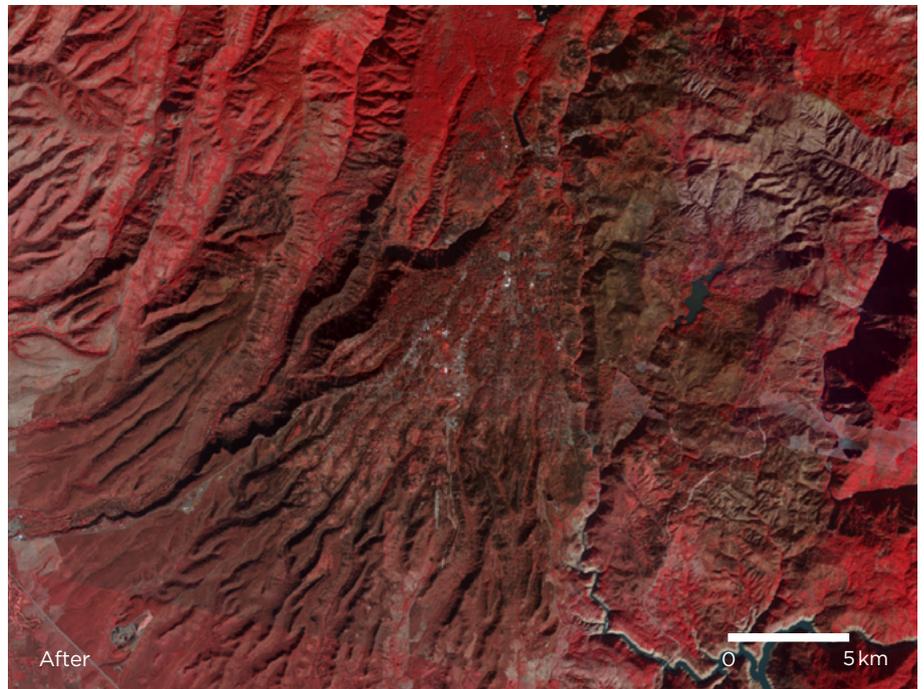
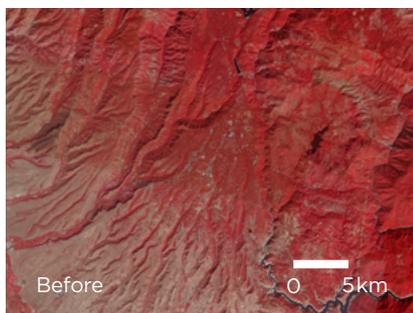
0 250km

DIVERSE USE CASES

Whether your organization uses vegetation indices or wants to do machine learning feature extraction, Surface Reflectance Basemaps eliminate a huge amount of manual and costly pre-processing, helping you to get to analysis faster and have confidence in the integrity of your applications.

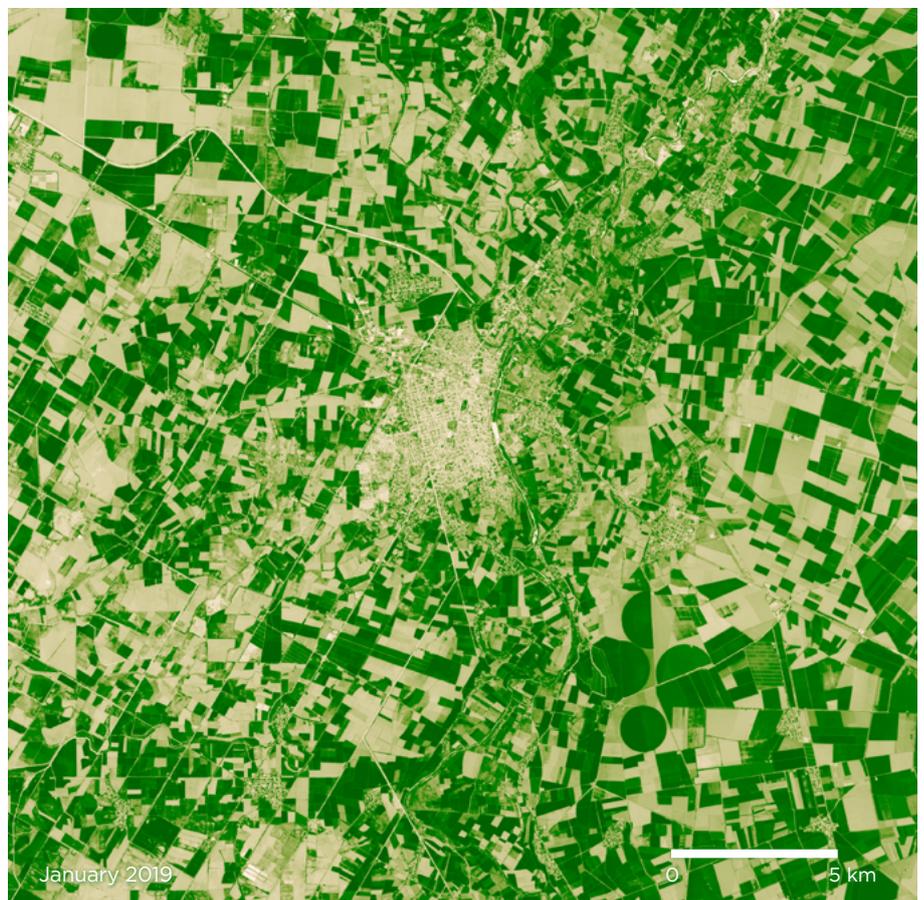
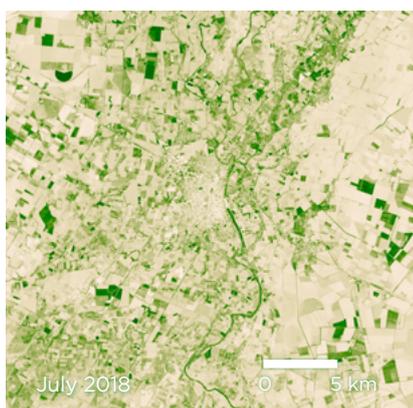
Post-disaster assessment

Surface Reflectance Basemaps provide seamless, high-resolution views over wide areas and in specific time periods. Shown above is a false-color infrared basemap of Paradise, California, enabling assessment before (October 2018) and after (November 25, 2018—January 15, 2019) the Camp Fire swept through the region.



Agricultural monitoring

Calibrated surface reflectance values for four visible and near-infrared bands allow calculation of standard geophysical parameters like Normalized Difference Vegetation Index (NDVI). This pair of maps shows the greening of fields surrounding the town of Centro in Sinaloa, Mexico from early July 2018 to late January 2019.



Forest monitoring

Elevation has a dramatic influence on the appearance of spring leaves in mountainous Semenic-Cheile Carasului National Park, Romania—deciduous trees on the slopes of Semenic Mountain were barren in April 2018 and fully green in August. Surface Reflectance Basemaps enable forest managers to monitor change over time without needing to manipulate heterogeneous datasets.



SURFACE REFLECTANCE METHODOLOGY

Planet leverages the 6SV radiative transfer code, which is used for calculation of lookup tables (LUTs), in combination with MODIS data to resolve atmospheric conditions in PlanetScope imagery. The model accounts for aerosol type, aerosol optical depth, water vapor, and ozone. It also accounts for factors like sun angle.

This approach enables us to deliver surface reflectance data that is consistent across seasons, continents, and instruments. The result is a Basemap product that is optimized for analysis for a variety of use cases. The product also includes the relevant metadata, making it easy to reference the processing that has been applied.

To learn more about our methodology, refer to the [Product Specification](#).

PRODUCT SPECIFICATION

Source Imagery	PlanetScope 4-band	PlanetScope 8-band
Spatial resolution	4.77 m at equator (zoom level 15) 2.38 m at equator (zoom level 16)	4.77 m at equator (zoom level 15) 2.38 m at equator (zoom level 16)
Spectral bands	Red, Green, Blue, Near-Infrared, Alpha*	Coastal Blue, Blue, Green I, Green II, Yellow, Red, Red Edge, Near-Infrared, Alpha*
Bit depth	16-bit	16-bit
Projection	WGS84 Web Mercator	WGS84 Web Mercator
Positional accuracy	< 10 m RMSE	< 10 m RMSE
Pixel Traceability	Yes	Yes
Delivery	Planet Basemap Viewer Web access via WMTS or web tiles GeoTIFF file	Planet Basemap Viewer Web access via WMTS or web tiles GeoTIFF file

*The alpha mask indicates areas of the quad where there is no imagery data available

LET'S TALK

We're Here to Help!

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turn data to actionable insights
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