

Satellite imagery - collected information

Last changed: 2018-08-13

Overview of imagery offered by Planet.com

satellite	image source	1/resolution (m/pixel)	product	remarks
Skysat (all WGS84, UTM)	Planet.com (not accessible for 14 day trials!)	0.8-1	Visual Ortho Scene (RGB)	
			Pansharpened Multispectral Ortho Scene (RGBN)	near infrared may be useful
			Analytic DN Ortho Scene	orthorectified, but uncalibrated digital number imagery product.
			Panchromatic DN Ortho Scene	orthorectified, but uncalibrated digital number imagery product; ... has a finer GSD than the Analytic Product
			Analytic Ortho Scene (RGBN)	calibrated multispectral imagery products that have been processed to allow analysts to derive information products for data science and analytics.
			Ortho Collect	Ortho scenes stitched together; may contain stitching artifacts
Planetscope (all WGS84, UTM)	Planet.com	3 (likely too coarse)	Visual Ortho Scene (Level 3B)	several corrections to image (sun angle, etc) to make it visually appealing
			Analytic Ortho Scene, RGB and RGBN (Level 3B)	several corrections intended for analysis; that's the one to use
			Visual Ortho Tile (Level 3A)	visual Ortho Scenes stitched together
			Analytic Ortho Tile, RGBN (Level 3A)	analytic Ortho Scenes stitched together
Rapideye	Planet.com	5 (very likely too coarse)	- not further investigated-	
Landsat 8		15-30 (useless)		

Overview of satellite imagery we have obtained so far (as of Aug 13)

area	naming scheme	bands (note order! N=near-infrared)	bits	comment
Borneo 3093	*_Visual	RGB + alpha channel	8	OK for visual inspection & road labeling
	*_Analytic	RGB	16	not really useful
	*_AnalyticMS *_AnalyticMS_SR	BGRN	16	these we want to use for analysis
Borneo 3347	*_AnalyticMS *_AnalyticMS_SR	BGRN	16	these we want to use for analysis

Quick summary: when downloading imagery in the future, make sure that in the notebook the 'Item Type' variable is set to 'PSScene4Band', otherwise the analytic images will be 3-band. For more information, read the Planet manual, especially p. 74.

Excerpts of Planet.com's manual:

Orthorectification

The process of removing and correcting image distortions introduced by satellite collection geometry, pointing error, and terrain variability

Ortho Tile

Ortho Tiles are Planet's core product lines of high-resolution satellite images. Ortho tiles are available in two different product formats: Visual and Analytic, each offered in GeoTIFF format.

Planet offers three product lines for PlanetScope imagery: a Basic Scene product, an Ortho Scene product, and an Ortho Tile product. The Basic Scene product is a scaled Top of Atmosphere Radiance (at sensor) and sensor-corrected product. The Basic Scene product is designed for users with advanced image processing and geometric correction capabilities. The product is not orthorectified or corrected for terrain distortions. Ortho Scenes represent the single-frame image captures as acquired by a PlanetScope satellite with additional post processing applied. Ortho Tiles are multiple orthorectified scenes in a single strip that have been merged and then divided according to a defined grid.

SkySat imagery is captured similar to PlanetScope in a continuous strip of single frame images known as "scenes", which are all acquired in the blue, green, red, nir-infrared, and panchromatic bands. SkySat data is available in four product lines: the Basic Scene, Ortho Scene, Basemap, and SkySat Collect products.

The name of each downloaded image product is composed of the following elements:

<acquisition date>_<acquisition time>_<satellite_id>_<productLevel><bandProduct>.<extension>

The Ortho Scene product GeoTIFFs are resampled at 3 m, and projected in the UTM projection using the WGS84 datum. An alpha mask is provided as a binary color channel. The alpha mask can be used to remove or hide low-image-quality pixels near the periphery of a given scene.

Further insights from different sources

Borneo is one of the cloudiest places on earth: <https://medium.com/planet-stories/one-of-the-worlds-largest-reservoirs-lies-hidden-in-the-mountainous-center-of-borneo-1300215f26bf>

Would cloud-free basemaps be better suited to our purpose?

<https://medium.com/planet-stories/when-the-clouds-part-with-daily-satellite-imagery-a201b5f418bc>