Norwegian Ministry of Climate and Environment

NICFI
Norway's International Climate and Forest Initiative

KSAT
KONGSBERG
KONGSBERG SATELLITE SERVICES

planet.

AIRBUS

NICFI DATA Program
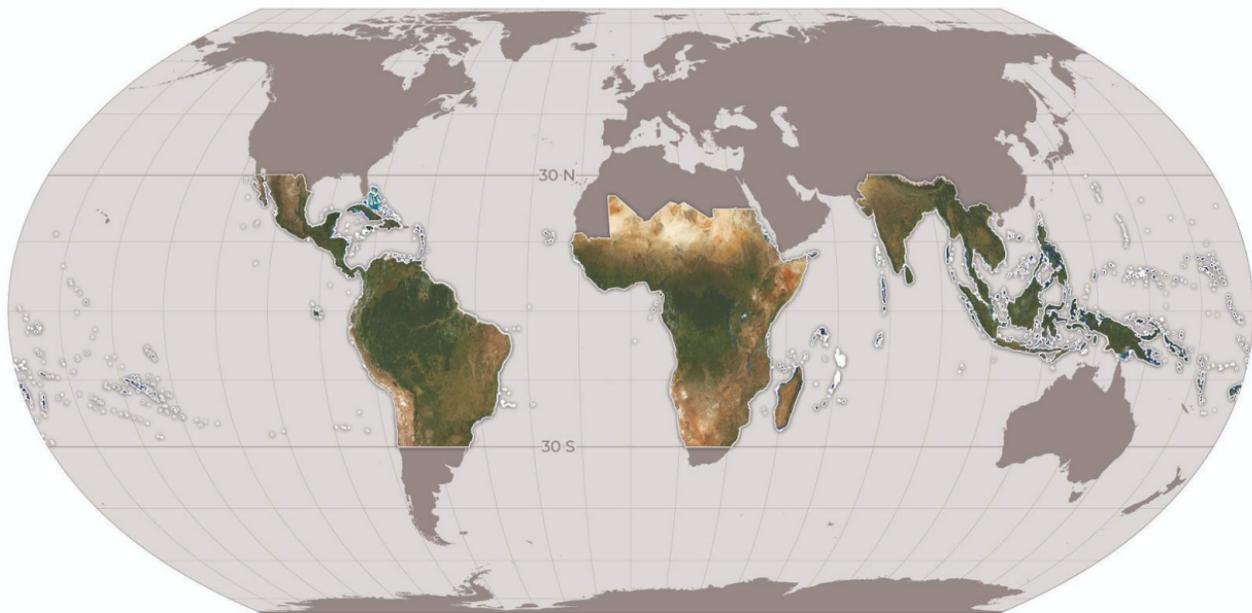## User Guide

Third party participants (Level 1 Users)

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1. INTRODUCTION

Welcome to Norway's International Climate and Forests Initiative (NICFI) satellite program. Norway's International Climate and Forests Initiative (NICFI) is an international development fund through which Norway has pledged 3 Billion NOK a year to help save the world's tropical forests while improving the livelihoods of those who live off, in, and near the forests. In September 2020, the Norwegian Ministry of Climate and Environment awarded an international contract to Kongsberg Satellite Services (KSAT), with partners Planet and Airbus, to provide comprehensive access to high-resolution satellite monitoring of the tropics. As part of this Program, Planet is proud to partner with NICFI in making high resolution satellite imagery of the tropics available free of charge to users advancing the NICFI Purpose of reducing and reversing tropical forest loss, combating climate change, conserving biodiversity, and facilitating sustainable development. The program will be ongoing until September, 2022 with potential for a further two year extension. In this document you will find all the information you need to use the NICFI data. Through the NICFI program, you can access high-resolution (<5m) basemaps (also, referred to as mosaics) of the world's tropics and:

- View the (visual) tropical basemaps in Planet Explorer and Planet Basemap Viewer platform.
- Download the (analysis-ready) tropical basemaps via Planet Basemap Viewer, Planet Mosaics API, and/or via integrations with QGIS or ArcGIS Pro.
- Stream the (visual) tropical basemaps through WMTS and XYZ tiles services in web map applications, including in leading applications like QGIS and ESRI products, for advanced analysis.

1.1. Access to the NICFI Program

If you have not already signed up for the program please submit your information in the NICFI Imagery Program webpage. Once you enter your email, you will receive a follow-up email with a unique link to activate your account. The link will direct you to a signup form to enter further details about you and your organization. Finally, you will be asked to agree to the Terms of Service in support of the NICFI purpose. Once you complete this form you will be redirected to the Planet Explorer, and on your way to working with these data products.

Please note, current Planet customers are welcome to sign up for the NICFI Data Program but must register with a different email than the one associated with their existing Planet account.

1.2. The NICFI Purpose

The primary purpose of the NICFI Program is to support reducing and reversing the loss of tropical forests, contributing to combating climate change, conserving biodiversity, contributing to forest

regrowth, restoration, and enhancement, and facilitating sustainable development, all of which must be Non-Commercial Use.[1]

1.3. User Access Levels

There are three User Access Levels to the NICFI datasets:

- **Level 0 - Open and Public Good:** Public view-only access of the Visual Mosaics (historical and future mosaics) through Purpose Ally sites. (Purpose Allies are entities that engage the public on forests and land use monitoring, e.g Global Forest Watch).
- **Level 1 - As Open as Possible:** Access to download Surface Reflectance mosaics (historical and future mosaics) from the Planet Platform and via Planet's integrations. User groups include Third Party Participants e.g. those individuals and organizations using the data in pursuit of the NICFI Purpose.
- **Level 2 - Select Partners:** Strategic partners defined by Norwegian Ministry of Climate and Environment who have access to Level 1 data layers as well as the underlying scenes from Planet and selected historical archive data from Airbus back to 2002.

1.4. Included Geographies

The mosaics cover tropical forest regions between 30 degrees North and 30 degrees South. This is a geographic area of roughly 45 million square kilometers. Not included in the tropical mosaics are non- or low-forest-covered areas as well as countries such as Australia, China, the USA and its Overseas Territories, or countries outside of the tropic region. Countries included in the tropical mosaics can be found at the end of this document, Section 7.1. The following countries are partially covered in the mosaics: Argentina, Chile, Mozambique, and South Africa.

2. NICFI PROGRAM DATA

The NICFI data products cover Archive (historical) data from December, 2015 - August, 2020 (one basemap every six months) and Monitoring (future) data from September, 2020 - August, 2022 (one basemap for each month). The Monitoring basemaps will be updated every month from September 2020 to 30 August 2022, with the possibility for extension for a further two years. All data products licensed through this program have a perpetual license meaning that data downloaded can continue to be used once the program has ended.

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[1] **Any** user, **including** commercial entities, may sign up to the Program and use the data towards the Purpose. The license includes commercial entities use towards the Purpose, not towards the pursuit of profit. (For example, a commercial entity uses the data to check and publish supplier adherence to zero deforestation sourcing commitments.)

Through this program, users will have access to the products described below. The product specifications have been condensed in this document but you can find the full product specifications within the [Addendum to Basemaps Product Specification.](#)

As of June, 2021 these are the available basemaps:

Historical Basemaps	Monitoring Basemaps
planet_medres_normalized_analytic_2015-12_2016-05_mosaic	planet_medres_normalized_analytic_2020-09_mosaic
planet_medres_normalized_analytic_2016-06_2016-11_mosaic	planet_medres_normalized_analytic_2020-10_mosaic
planet_medres_normalized_analytic_2016-12_2017-05_mosaic	planet_medres_normalized_analytic_2020-11_mosaic
planet_medres_normalized_analytic_2017-06_2017-11_mosaic	planet_medres_normalized_analytic_2020-12_mosaic
planet_medres_normalized_analytic_2017-12_2018-05_mosaic	planet_medres_normalized_analytic_2021-01_mosaic
planet_medres_normalized_analytic_2018-06_2018-11_mosaic	planet_medres_normalized_analytic_2021-02_mosaic
planet_medres_normalized_analytic_2018-12_2019-05_mosaic	planet_medres_normalized_analytic_2021-03_mosaic
planet_medres_normalized_analytic_2019-06_2019-11_mosaic	planet_medres_normalized_analytic_2021-04_mosaic
planet_medres_normalized_analytic_2019-12_2020-05_mosaic	planet_medres_normalized_analytic_2021-05_mosaic
planet_medres_normalized_analytic_2020-06_2020-08_mosaic	...more coming every month until August, 2022

2.1. PlanetScope Visual Mosaics

Optimised for visual display and interpretation, Visual Mosaics offer a "true-colour" representation of spatially accurate data with minimized haze, illumination, and topographic effects. These are ideal for users visually monitoring and interpreting satellite imagery.

Product Specifications:

- Area: Global tropical regions as defined above in "Included Geographies"
- Spatial resolution: 4.77m per pixel
- Spectral resolution: Red, Green, Blue (3-band)
- Temporal resolution
  - Archive from December, 2015 - August, 2020 at bi-annual cadence
  - Monitoring from September, 2020 - onwards at monthly cadence

2.2. PlanetScope Surface Reflectance Mosaics (Analysis Ready)

Optimized for scientific and quantitative analysis, these mosaics offer an analytic or "ground truth" representation of spatially accurate data with minimized effects of atmosphere and sensor

characteristics. These include a fourth band (near-infrared) and are suited for a variety of vegetation indices, including Normalized Difference Vegetation Index (NDVI), and more. These are ideal for users scientifically or quantitatively monitoring or interpreting satellite imagery.

Product Specifications:

- Area: Global tropical regions
- Spatial resolution: 4.77m per pixel
- Spectral resolution: Red, Green, Blue, Near-Infrared (4-band)
- Temporal resolution
    - Archive from December, 2015 - August, 2020 at six month cadence
   - Monitoring from September, 2020 - onwards at monthly cadence

2.3. Quads

Imagery within Planet basemaps is distributed as a grid of GeoTIFF files, which are called "basemap quads" or simply "quads".
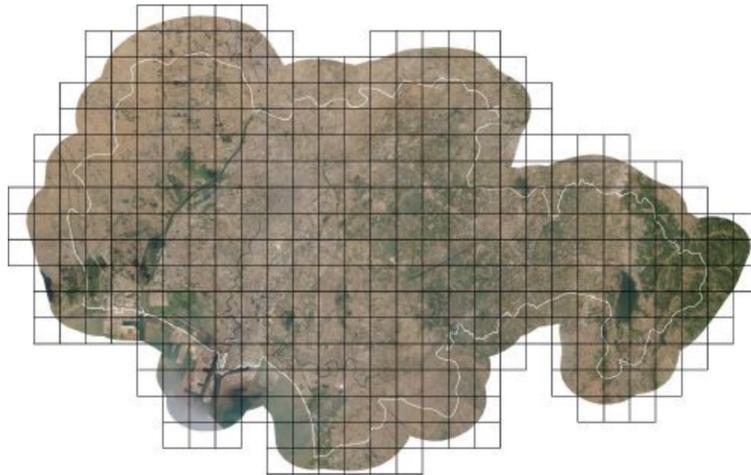
Basemap with Quad boundaries

The projection used in Planet Basemaps has been selected to match what standard web mapping applications (Web Mercator Projection). The Alpha Mask indicates areas of the quad where there is no imagery data available.
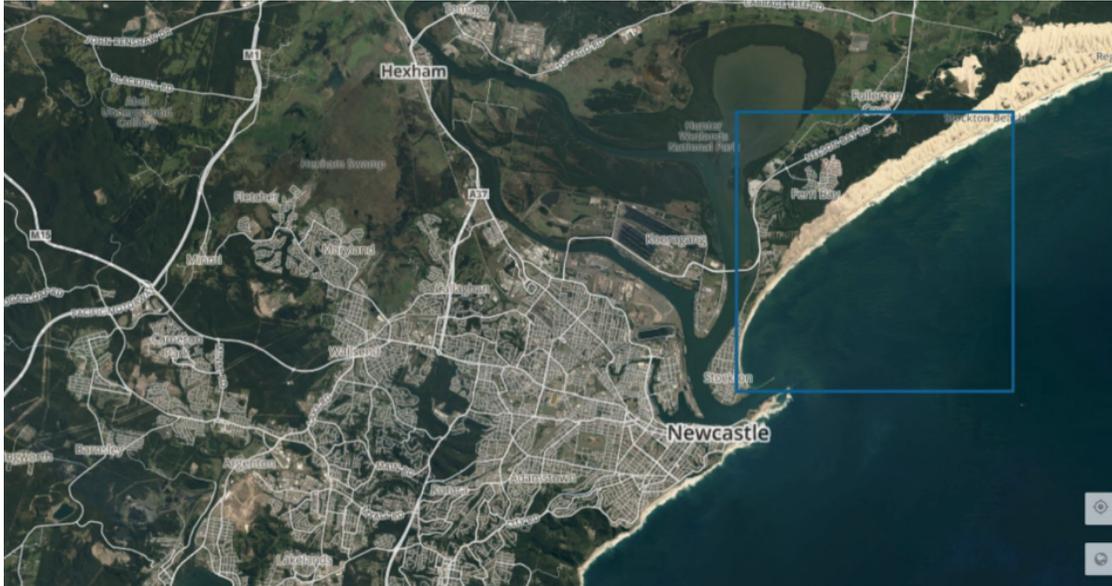
Single Quad within a basemap

3. DATA DOWNLOADING AND STREAMING

Users can download basemap quads and/or stream basemap tiles from the Planet Platforms and via integrations. Before users download or stream basemaps, they should understand how Planet names basemaps and how they are grouped together into the basemap series.

When users finish signing up for the NICFI Program, they are directed to the Planet Platform, Planet Explorer. Planet Explorer is a streaming web application for basemaps only. Users need to use alternative tools to download basemaps; Planet Basemaps Viewer, Mosaics API or integrations.

3.1. Basemap Series

Planet stores multiple basemaps of the same temporal cadence under series names. Users will find the basemap series that they have access to on Planet's Platform. The series included with the NICFI data are:

- PS Tropical Normalized Analytic Biannual
- PS Tropical Normalized Analytic Monthly

Within each series, there are basemaps at specific cadences that users have access to. Each basemap within the series is called:

- Bi-Annual: planet_medres_normalized_analytic_YYYY_MM_YYYY_MM_mosaic

- Monthly: planet_mederes_analytic_YYYY_MM_mosaic

The date in the name will change based on the date being visualized.

You can also view the NICFI data through NICFI's Purpose Allies, such as [Global Forest Watch](#).

3.2. Planet Platforms

Here is a list of Planet Platforms that NICFI users can access. Users can log in using their Planet credentials created when signing up via the [NICFI Program Landing Page](#).

3.2.1. Planet Explorer

[Planet Explorer](#) is a Planet web application designed to view imagery ranging from daily scenes to weekly, monthly and quarterly basemaps. When users sign up for the NICFI Program, and fill out the form with their information, they are directed to this web application. You can use Planet Explorer to view the tropical basemaps and analyze the tropical basemaps in the browser, including enhancing pixels and applying spectral indices. Currently, you can not download basemaps through Planet Explorer. Find out more about Planet Explore, and all the ways you can view and analyze the tropical basemaps within it, by reading the [Planet Explorer User Guide](#).

3.2.2. Basemaps Viewer

[Basemaps Viewer](#) is an online tool used to view and download basemaps. You can use Basemaps Viewer to view the tropical basemaps, download basemap quads, and find out which scenes were used to create the basemap quads. Find out more about Basemaps Viewer by reading the [Basemaps Viewer User Guide](#).

Planet recommends using the Basemaps Viewer if you are seeking to download a *small subset* of the tropical basemaps (basemap quad(s)). For more detailed instructions on downloading the basemap quad(s), please read this section of the [user guide](#).

3.2.3. Mosaics API

Mosaics (mosaics are another name for basemaps) API is an API built for Planet users to bulk download basemaps. Users will need to obtain their Planet API key from their [Account Settings](#) and can follow the instructions from [Getting Started with Planet APIs](#) on how to get the API key.

To download the full tropical basemaps (or a large subset thereof - e.g., many basemap quads), Planet recommends working through Planet's Mosaics API. For more detailed instructions, please read the [Mosaics API User Guide](#) or refer to [the full API reference](#).

3.2.4. Planet Client (Command Line Tool)

Planet Client is a Python client library and command line interface for Planet's Public API which allows users to download Planet Imagery including basemaps. Users can install the client from here.

3.2.5. Basemap Tile Service

Planet's API Tile Service and Basemap Tile Service make it easy to visualize the Planet tropical basemaps in desktop or web mapping applications that support either XYZ or WMTS protocol. These services offer a low-friction way for web developers and GIS analysts to interact with and derive value from the basemaps without the need for downloading GeoTiff image files and further image processing.

You can stream the tropical basemaps through your Planet account. Authentication is achieved by providing a valid api_key as a query parameter to all the tile requests.

To learn more about using Planet's tile services to stream the Basemaps, please see the user guide here. Streaming links can be found by adding your API key as a parameter to the link below. Once your API key is added, this link will allow selection of WMTS and XYZ URLs for streaming the basemaps: http://api.planet.com/basemaps/v1/services?api_key=

3.3. Integrations

An easy way to access Basemaps is through Planet GIS integrations. Planet integrations enable desktop GIS application users to discover and stream Planet Basemaps within both QGIS and ArcGIS Pro. Through these integrations, users can download all or a subset of their basemaps.

3.3.1. QGIS

The Planet QGIS Plugin V2 is an open-source plugin that can be installed and added to your QGIS program for free. Users can download all or a subset of their basemaps through the Planet QGIS Plugin V2. It allows users to stream their surface reflectance basemaps in false color or as a spectral index visualization such as NDVI.

To discover, stream, and download the Planet tropical basemaps in QGIS, access and learn more about the plug-in here. Documentation specifically discussing basemaps is found here. To learn more about QGIS integrations with relevant platform workbooks, like UN-FAO's SEPAL platform, read the module for SEPAL Planet Order.

3.3.2. ArcGIS Pro

The Planet ArcGIS Add-In V2 is an ArcGIS Pro Add-in that can be installed and added to your ArcGIS Pro software for free. Users can download all or a subset of their basemaps through the Planet

ArcGIS Add-In V2. It allows users to stream their surface reflectance basemaps in false color or as a spectral index visualization such as NDVI.

To discover, stream and download Planet tropical basemaps in ArcGIS, access and learn more about the plug-in here. The section discussing basemaps specifically is found here.

3.3.3. Google Earth Engine

To discover, stream and download Planet imagery (and soon tropical basemaps) in Google Earth Engine, access and learn more about the process here.

4. TERMS OF USE

The Level 1 data is licensed by Planet under a custom, non-commercial license (similar to a Creative Commons-type license) in support of the NICFI Purpose.

The purpose of this license is to provide users globally with access to Planet's proprietary Platforms and associated Content (tropical high-resolution mosaics) for the primary purpose of:

> *Reducing and revising loss of tropical forests, contributing to combating climate change, conserving biodiversity, contributing to forest regrowth, restoration and enhancement, and facilitating sustainable development.*

All use must be non-commercial or not in the primary pursuit of profit. All use must be in support of and with the primary goal of fullinfing the NICFI Program Purpose, users are authorized to:

- Access, view, download, and use the Content;
- Reproduce, store, display, print, and redistribute Content in any medium or format;
- Display the Content on your website;
- Create derivative products from the Content (i.e. remix, transform,or build upon).

Examples of use cases in accordance with this Contract include (but are not limited to):

- Approved and implemented policies for sustainable forest and land use in tropical forest countries and jurisdictions.
  - Example: Government institution, as a Third Party Participant or a General Partner, utilizes mosaics to improve resource management plans.
- Improved rights and livelihoods for indigenous peoples and local communities in tropical forest countries.
  - Example: Local NGO and journalist, as Third Party Participants, use mosaics to document and trigger prosecution of illegal land grab.

- Effective international incentive structures for reduced deforestation in tropical forest countries
  - Example: Government institution (with consultant support), as a Third Party Participant or a General Partner, uses mosaics as reference data to improve annual deforestation estimates.
- Increased transparency in land management, land use, value chains, and financing to reduce pressure on forests from global markets.
  - Example: NGO or Government, as General Partner, uses image archive and frequently updated imagery to generate automatic deforestation alerts.
- Commodity markets stimulate deforestation-free production in tropical forest countries.
  - Example: Commodity trader paired with NGO, as Third Party Participant, uses mosaics to conduct internal review of suppliers adherence to zero-deforestation commitments.
- Financial markets stimulate deforestation-free commodity production in tropical forest countries.
  - Example: Commercial company, as Third Party Participant, uses mosaics to improve environmental risk assessment and rating of specific companies.
- Reduced forest crime.
  - Example: International government agency, as General Partner, uses Scenes to plan operations.

Examples of use cases outside the scope of this Contract, and for which the Participant should negotiate a commercial license with Planet or Airbus in good faith:

- Commercial agricultural analytics
  - Example: Multinational commercial corporation, as a Third Party Participant, uses Mosaics to inform lucrative derivative products for industrial precision agriculture, with no primary intention for or progress towards achieving the Purpose.
- Commodities and/or hedge fund trading for profit
  - Example: Hedge fund, as a Third party Participant, uses Mosaics to inform profitable derivative products for commodities trading, with no primary intention for or progress towards the Purpose.

In support of and with the primary goal of fulfilling the Purpose, once your Planet account is activated and once you have agreed to the terms of the license, you are authorized to access, view, download, use, display, print, and create derivative products from the Content (tropical mosaics).

Level 0 is publicly displayed and accessible to all.

5. SUPPORT

A 24/7 support service is available to all users throughout the contract term. The tiered support system has a single access point through the KSAT team who manages requests, responds, or

reassigns your ticket to the appropriate teams at Planet or Airbus as necessary. To access this service please send your request to nicfi-servicedesk@ksat.no.

6. FREQUENTLY ASKED QUESTIONS

Check out the Frequently Asked Questions documentation if you have additional questions.

7. APPENDIX

7.1. List of Countries

- Angola
- Argentina
- Bangladesh
- Belize
- Benin
- Bhutan
- Bolivia
- Botswana
- Brazil
- Brunei Darussalam
- Burundi
- Cambodia
- Cameroon
- Cape Verde
- Central African Republic
- Chad
- Chana
- Chile
- Colombia
- Comoros
- Congo
- Costa Rica
- Côte d'Ivoire
- Dominica
- Dominican Republic

- DRC
- Ecuador
- El Salvador
- Equatorial Guinea
- Eswatini
- Ethiopia
- Fiji
- French Guiana
- French Polynesia
- Gabon
- Gambia
- Guatemala
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
- Honduras
- India
- Indonesia
- Jamaica
- Kenya
- Kiribati
- Lao People's Democratic Republic

- Lesotho
- Liberia
- Madagascar
- Malawi
- Malaysia
- Mayotte
- Mexico
- Micronesia, Federated States of
- Montserrat
- Mozambique
- Myanmar
- Namibia
- Nauru
- Nepal
- Nicaragua
- Nigeria
- Palau
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Rwanda
- Saint Kitts and Nevis
- Saint Lucia

- Samoa
- Sao Tome and Principe
- Senegal
- Seychelles
- Sierra Leone
- Solomon Islands
- Somalia
- South Africa
- Sri Lanka
- Sudan Thailand
- Suriname
- Timor-Leste
- Togo
- Tonga
- Uganda
- United Republic of Tanzania
- Vanuatu
- Venezuela
- Vietnam
- Zambia
- Zimbabwe