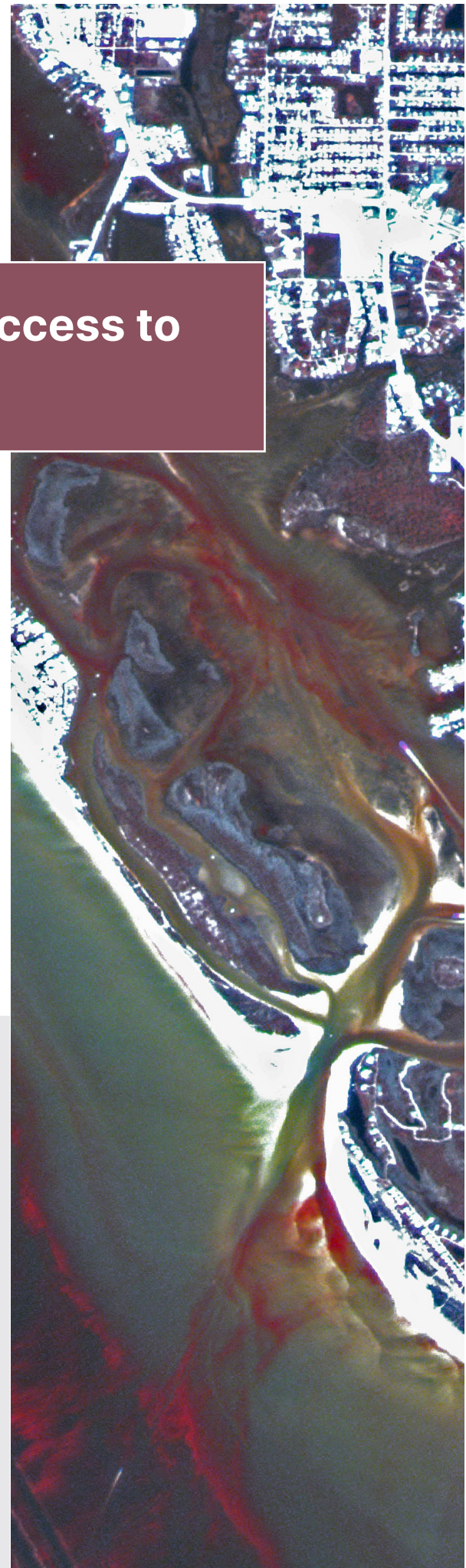


National Aeronautics and
Space Administration



Training Resources: Broader Access to Planet Data

Summary

This Commercial Satellite Data Acquisition (CSDA) activity, informed by the Satellite Needs Working Group (SNWG), provides broader access to Planet data. Planet data often provides higher spatial resolution imaging and greater temporal resolution for various applications.

A number of training resources relevant to this solution are aggregated into five categories (specified below). For more information about this solution, visit the [Broader Access to Planet Data webpage](#).

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Fundamentals of Remote Sensing

This category's resources provide an introduction to remote sensing techniques used to develop this solution.

<p><u>Fundamentals of Remote Sensing</u></p>	<p>Training modules on the fundamentals of remote sensing provided by NASA's Applied Remote Sensing Training (ARSET) program. This training supports users in understanding and utilizing remote sensing data.</p>
<p><u>Earth Observation Data Basics</u></p>	<p>Webpage providing an overview of remote sensing capabilities and components, including orbits, sensors, and spatial resolutions. It provides data users insight into how remotely sensed data is collected.</p>
<p><u>From Pixels to Products: An Overview of Satellite Remote Sensing</u></p>	<p>Presentation by Dr. Sundar Christopher at NASA's Office of Data Science and Informatics providing an overview of satellite remote sensing with a focus on the visible, near-infrared, and thermal infrared segments of the electromagnetic spectrum. It provides background information and guided examples on how remotely sensed data are collected and transformed into data products.</p>

Missions and Instruments

This category's resources describe the missions and instruments used to develop this solution.

<p><u>Planet - Company Overview</u></p>	<p>Video overview of Planet, the advances in spatial and temporal resolution it made for the remote sensing community, and potential applications of its data, such as predicting yield from croplands and assessing urban development.</p>
<p><u>Planet Constellations</u></p>	<p>Webpage providing an overview of Planet's monitoring, tasking, and hyperspectral satellite constellations. Examples of use cases, characteristics, and specs are provided for each satellite.</p>
<p><u>PlanetScope Imagery - An Overview</u></p>	<p>Webpage describing PlanetScope imagery which is collected by Planet's Dove fleet of satellites. It includes information on the Dove instruments, available imagery products, data processing steps, and more.</p>
<p><u>PlanetScope Mission Page - ESA Earth Online</u></p>	<p>Webpage with additional information on PlanetScope instrument specifications and data products, as well as example imagery.</p>
<p><u>RapidEye Imagery - An Overview</u></p>	<p>Webpage with information on RapidEye (formerly operated by Planet) which is a retired constellation of five satellites operating from 2009 to 2020. It includes details on available imagery products and processing steps.</p>

Data Products and Descriptions

This category's resources describe the solution's resulting data products and provide other descriptive materials.

<p><u>Planet Products</u></p>	<p>Webpage providing a summary of the different types of Planet products including Planet Monitoring, Planet Satellite Tasking, Planetary Variables, Analytic Feeds, Planet Hyperspectral, and Planet Basemaps.</p>
<p><u>Planet Imagery Product Specifications</u></p>	<p>Specifications document for the Planet Imagery Products that includes information such as processing level, product metadata, processing steps, and delivery for each satellite constellation.</p>

Data Access and Code Examples

This category's resources provide links to access the solution's data as well as open source code for using the data.

<p><u>NASA CSDA Program Commercial Datasets - Access to Planet Data</u></p>	<p>Webpage that lists all of the CSDA vendors, including Planet, that provide data access to U.S. Government-affiliated employees. This resource provides information on the datasets that are available, the temporal coverage of the data, the End-User License Agreement (EULA), who is authorized to use the data, and where to access archived data.</p>
<p><u>NASA CSDA Satellite Data Explorer</u></p>	<p>Tool for searching and accessing commercial satellite data acquired by NASA, including Planet data. It includes an interactive map where users can view the commercial imagery over their geographic area of interest and apply filters.</p>

<p><u>CSDA Vendor - Planet</u></p>	<p>Webpage that provides information about accessing Planet data through NASA's CSDA program. It includes an overview of the available datasets, a brief description of authorized data use and users, the Planet EULA, information on how to request or access the data, copyright and acknowledgement requirements, information on the evaluation of Planet data by CSDA, current applications of the data, and characteristics of the different Planet constellations.</p>
<p><u>Resources for Planet Users</u></p>	<p>Webpage that provides access to open-source tools for Planet data users such as guides on how to analyze data, the use of the API, making batch requests, quick start guides, and Jupyter notebooks.</p>

Use Case and Application Examples

This category's resources provide examples of the solution in-use as well as other potential scientific applications of the data.

<p><u>Planet Applications Resources</u></p>	<p>Webpage for the Planet Content Library where users can access resources such as e-books, data sheets, and white papers that describe how different industries can use Planet data to improve their work. Examples include the "Planet Solutions for Disaster Management in Insurance" e-book and the "Preparing for EU Deforestation Regulation" white paper.</p>
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<p><u>CSDA Publications and Findings - Uses of Planet</u></p>	<p>Webpage providing a catalog of published research incorporating CSDA-distributed data. Examples of Planet use include using PlanetScope imagery for monitoring Harmful Algal Blooms (HABs), and in research comparing multi-sensor methods to assess cropping intensity on farms.</p>
<p><u>USDA's National Agricultural Statistics Service to use Planet Basemaps to Support their 2021 Growing Season Assessment</u></p>	<p>Web article describing how the United States Department of Agriculture (USDA) plans to integrate Planet data into their workflows for completing annual growing season assessments. Planet data enables the agency to provide more accurate and timely crop area yield assessments and enhance disaster-related assessments that require higher spatial and temporal resolution.</p>
<p><u>Exploring the Use of PlanetScope Data for Particulate Matter Air Quality Research</u></p>	<p>Publication describing research conducted by NASA on the use of PlanetScope data for fine particulate matter (PM_{2.5}) air quality research. The study specifically examines the geolocation accuracy, calibration quality, and consistency in spectral signatures for the Dove-Classic PlanetScope dataset, with results showing that there is potential for their use in air quality applications.</p>
<p><u>Assessing within-Field Corn and Soybean Yield Variability from WorldView-3, Planet, Sentinel-2, and Landsat 8 Satellite Imagery</u></p>	<p>Publication presenting research led by NASA on the viability of different high-resolution satellite products, including PlanetScope, for use in assessing crop yield variability. The spatial, spectral, and temporal characteristics of each product were evaluated for determining corn and soybean yields at sub-field scales and showed differing performances across products.</p>

Contact Information

Need additional help using this solution? Let us know what gaps or questions still exist, what tools interest you, and/or how you want to apply this solution. We are happy to connect you with more information and ongoing efforts to fill those gaps. Contact us at info@snwg-impact.net.