

**ACCESS TO PLANET HIGH SPATIAL AND TEMPORAL RESOLUTION EARTH OBSERVATION IMAGERY VIA THE NASA COMMERCIAL SMALLSAT DATA ACQUISITION (CSDA) PROGRAM.** T. N. Harrison<sup>1</sup> and J. Mascaro<sup>2</sup>, <sup>1</sup>Planet (Federal), Washington, DC (tanya.harrison@federal.planet.com), <sup>2</sup>Planet, San Francisco, CA (joe.mascaro@planet.com).

**Introduction:** NASA's Commercial Smallsat Data Acquisition (CSDA) Program was established to identify, evaluate, and acquire data from commercial providers that support NASA's Earth science research and application goals. Through this program, all NASA-funded researchers have access to Planet's vast archive of PlanetScope and RapidEye imagery for scientific use. This provides a rich dataset for terrestrial analogue work for planetary scientists [e.g., 1].

**PlanetScope:** Planet's Dove, Dove-R, and SuperDove 3U CubeSats collectively make up the "PlanetScope" constellation. PlanetScope images the entire landmass of the Earth and its coral reefs on a near-daily basis at 3-5 meter resolution. The satellites are in a 98° sun synchronous orbit with crossing times between 9:30–11:30AM. PlanetScope has been operational since 2014, with near-daily coverage achieved in late 2017. Our Dove and Dove-R satellites collect imagery in RGB and NIR bands. SuperDoves, which make up the majority of the constellation at present, acquire 5-band imagery in RGB, red edge, and NIR. In the coming months, this will be expanded to 8-band with the addition of coastal blue, yellow, and a second green band (see Figure 1 for details). The evolution from Dove to SuperDove has not only resulted in more spectral bands, but also significant improvements to radiometric calibration, dynamic range, spectral response, image sharpness, and band alignment with Sentinel-2.

**RapidEye:** The 5-satellite RapidEye constellation operated from 2009–2020, at which point the satellites reached the end of their operational lifespan and deorbit procedures were implemented. RapidEye provided RGB, red edge, and NIR imagery at 6.5 meter resolution.

**Data Availability Through CSDA:** All NASA-funded researchers have access to an initial quota of 5 million square kilometers of PlanetScope and RapidEye data through the CSDA Program. PlanetScope imagery is provided with a 30-day latency. Quota increases and no-latency access may be approved by NASA CSDA program managers on a case-by-case basis.

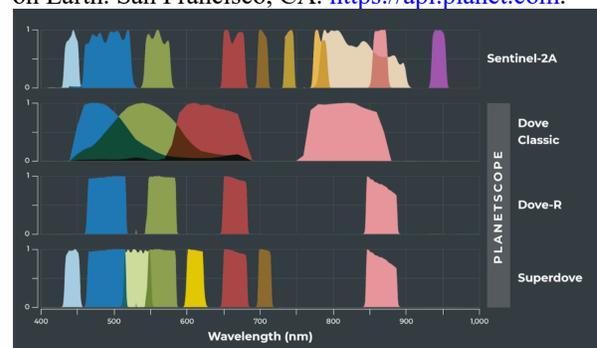
Planet imagery through CSDA is made available via a non-commercial Scientific Use License. Any derivative products such as maps, figures, etc., can be published in journal articles, and used in media releases or conference presentations with proper citation to Planet [2]. Raw imagery cannot be shared outside of

NASA-funded researchers, and data cannot be used for the development of commercial products or services.

**How to Apply:** All data requests must be approved by NASA CSDAP data managers. To request access, please send an email to [aaron.s.kaulufus@nasa.gov](mailto:aaron.s.kaulufus@nasa.gov) and [manil.maskey@nasa.gov](mailto:manil.maskey@nasa.gov) with your name and relevant NASA grant/contract number. Once the authorization process by NASA CSDA is complete, you and Planet will be notified of the approval. The entire process generally takes 1-2 weeks from the date of your initial email. For additional information, visit: [www.planet.com/markets/nasa](http://www.planet.com/markets/nasa)

**Other Data Access Options for Researchers:** For university-affiliated students, faculty, and staff that do not currently have NASA funding, Planet's Education and Research (E&R) Program provides another option to access our imagery. The Basic E&R license provides access to 5000 sq km of PlanetScope and RapidEye imagery per user per month. For larger data volumes, Departmental (15 TB) and Campus License (100 TB) options are available for purchase. For additional information, visit: [www.planet.com/markets/education-and-research/](http://www.planet.com/markets/education-and-research/)

**References:** [1] Harrison T. N. et al. (2017) AGU Fall Meeting 2017, P43C-2297. [2] Planet Team (2017) Planet Application Program Interface: In Space for Life on Earth. San Francisco, CA. <https://api.planet.com>.



**Figure 1.** Spectral bands of Planet's Dove Classic, Dove-R, and SuperDove satellites compared to Sentinel-2A. Note the addition of bands to SuperDove and the improved alignment with Sentinel-2A over time.



**Figure 2.** Samples of PlanetScope imagery. From left to right, top row down: Piqiang Fault, China (09/29/2019); Dukono volcano, Indonesia (03/29/2017); glaciers in southern Patagonia, Chile (05/24/2016); Occidental Glacier, Chile (01/12/2016); Marum Crater, Vanuatu (01/27/2016); Lake Macdonald, Australia (03/28/2016); Northern Manitoba, Canada (11/15/2016); Valle de la Luna, Argentina (07/27/2016); sea ice in the Tyuleniy Archipelago, Caspian Sea, Kazakhstan (12/07/2020). All images ©Planet.