Absolute calibration and validation of Skysat constellation

Adrian Gonzalez[1]

1) adrian.gonzalez@planet.com, Planet

Abstract

Skysat is a constellation of 15 High Resolution satellites, since 2017 part of the fleet operated by Planet (who also operates the constellations of Doves and Rapideye). The Skysat fleet provides 1 meter resolution imagery in five bands: Blue, Red, Green, Near Infrared and Panchromatic (0.8 m resolution) for multiple purposes. In this presentation we will show how we evolved from uncalibrated visual products (DNs) to calibrated Top of Atmosphere Radiance and Top of Atmosphere Reflectance.

The absolute calibration procedure is performed using Skysat imagery acquired over calibration sites located in the USA, France and Namibia belonging to the Radiometric Calibration Network (Radcalnet), a group of national and academic institutions involved in the radiometric calibration and validation of earth-observing sensors. The validation assessment of the Skysat calibrated data is done by means of ground campaigns done over different calibrations sites (like Brookings) and crossovers using different types of satellites: Doves, Rapideye, Landsat 8 and Sentinel 2.

Keywords - Calibration methodology and techniques