



Sensor description

- Constellation : Over 130 CubeSat (10x10x30 cm)
- Orbit Altitude : 475 - 525 km
- Frame Size : 32.5 km x19.6 km (1150x EPFL!)
- Sensor : 8-band frame imager
- Ground Sample Distance : 3.7 m-4.2 m
- Revisit Time : Daily at nadir

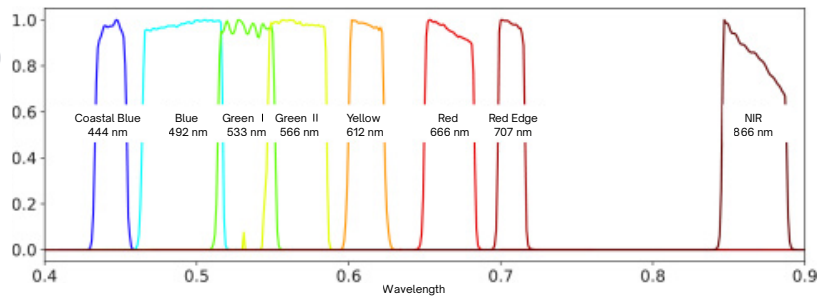


Image 1: Spectral bands

Application & Challenges

Agriculture consumes vast resources, yet most fields are still managed uniformly, with vast waste. Using radar and sensors to precisely monitor and map crop needs, farmers can deliver only what plants require—improving efficiency, sustainability, and resource use. The main challenges are the high upfront costs of sensors and satellites, as well as cloud cover limiting data collection. Because agricultural production is highly time-sensitive, satellites with high temporal and spatial resolution are especially valuable for timely monitoring and intervention.

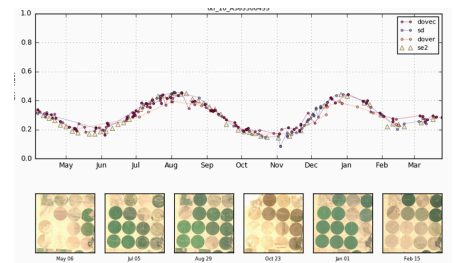
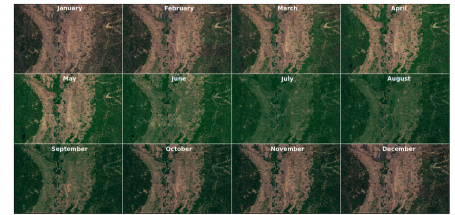


Image 2: Monitoring monthly vegetation growth and assessing water stress using SuperDove satellites to support precision irrigation.

Why does the sensor fit

- The bands captured include red (visible) and near-infrared bands that can be used to compute indexes such as the NDVI to monitor vegetation
- High resolution (up to 0.5 m) of the sensor helps to distinguish between healthy and unhealthy crops
- Globally distributed satellite system to monitor crops world-wide
- High frequency (daily) data provision

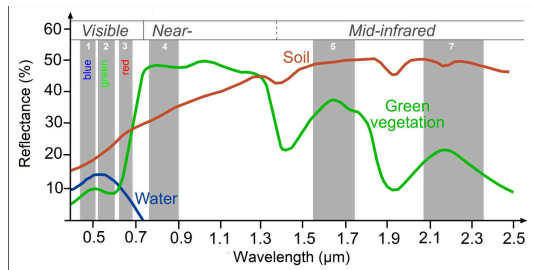
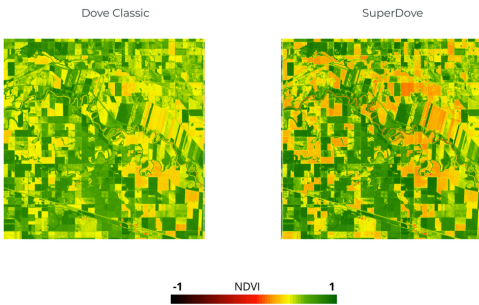
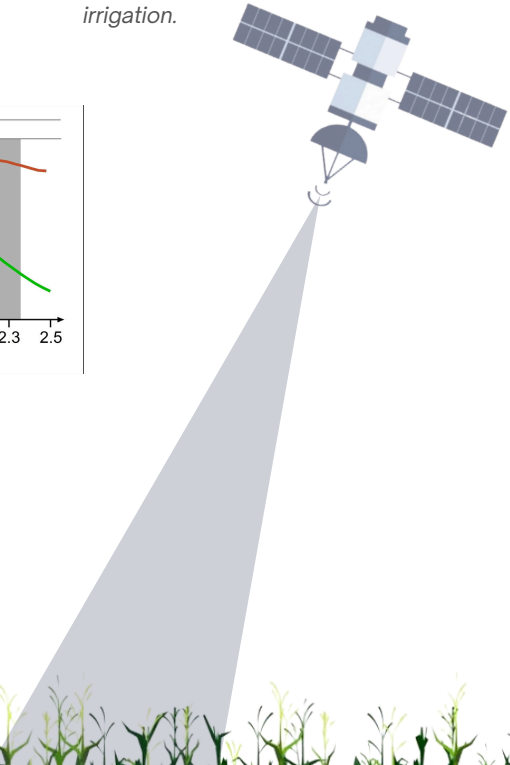


Image 3: Spectral signatures of soil, green vegetation and water

Examples

Manna Irrigation, an ag-tech company, is leveraging Planet satellites imagery to improve irrigation intelligence by providing irrigation recommendations, crop monitoring maps, and irrigation planning tools using software solutions on top of the satellite data received by Planet



Sources

- Planet Precision Agriculture: <https://www.planet.com/industries/agriculture/>
- Manna Irrigation: <https://www.planet.com/pulse/leveraging-planet-satellite-imagery-to-improve-irrigation-intelligence/>
- Syngenta: <https://syngenta.com>
- NASA Earth observatory: <https://earthobservatory.nasa.gov/>