Understanding current and future Earth Observation from Deimos Imaging

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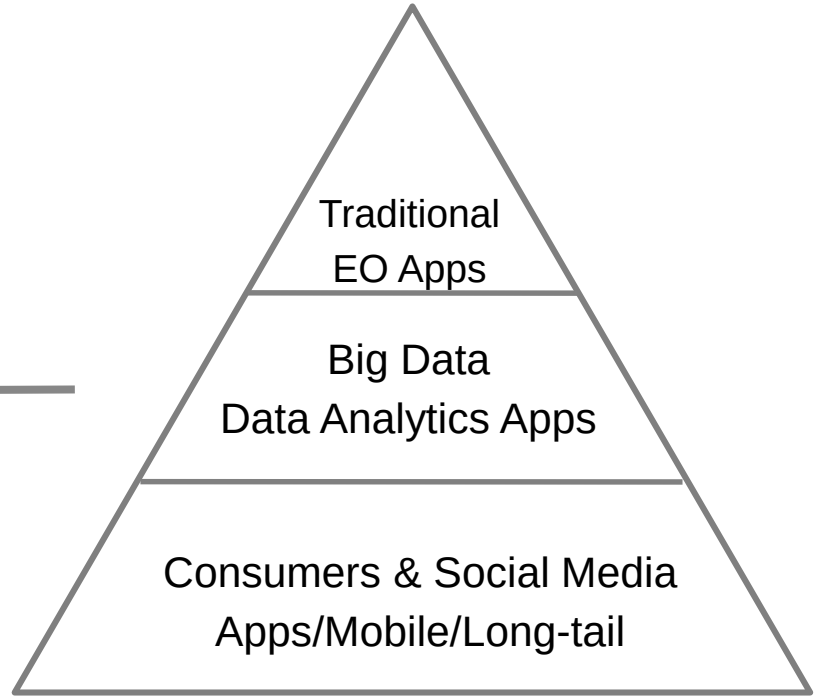
A Vertically-Integrated EO System

Space-based “big data” geospatial collection, processing, and information management system

Upstream
Satellites / Constellation

Midstream
UrthePipeline
Ground Segment

Downstream
Cloud-based Platforms



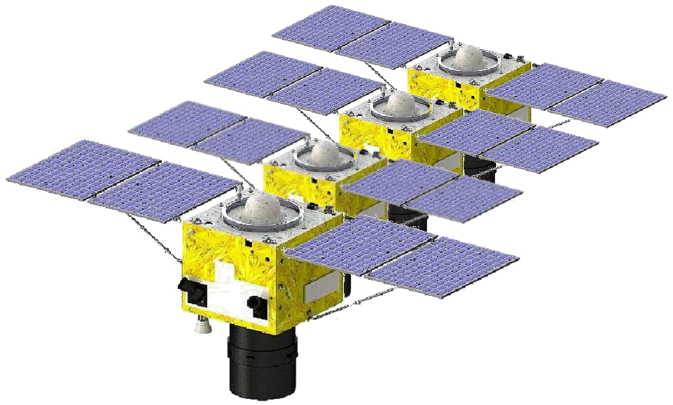
Markets

Unique EO portfolio

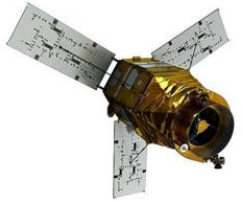
VHR data provided with scientific grade precision

DEIMOS-2

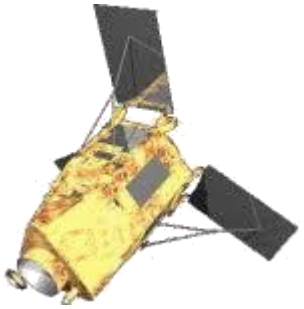
TRIPLESAT (3)



SUPERVIEW (4)



KOMPSAT 3/3A

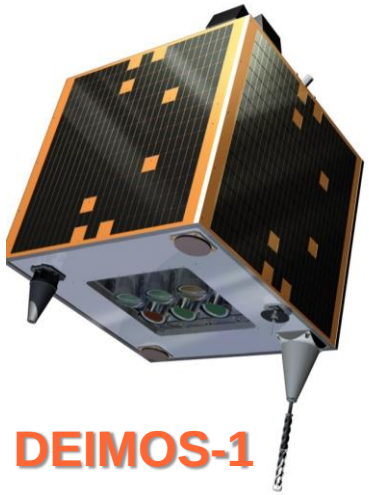


KAZEOSAT 1 / 2

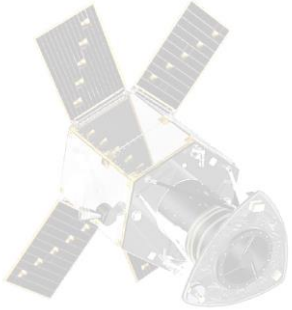
- ✓ highly responsive planning strategy
- ✓ Delivery in NRT (30 min)

Unique EO portfolio

Medium-High resolution data for large coverages



DEIMOS-1

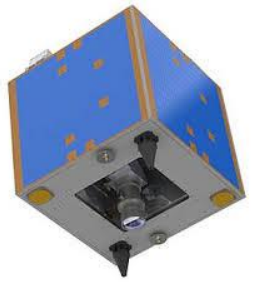


DEIMOS-2

GF1 / GF6

KAZSTSAT

ZY1 (2)



ALSAT-1B

- ✓ Optimized planning strategy
- ✓ Highly revisit coverages

Knowledge is Power

Providing High-Quality EO data is the main key goal at DEIMOS Imaging

Satellite-agnostic improved processing with UrthePipeline

Radiometry
Cross-calibration
Absolute calibration
Relative calibration

Geometry
Band registration
Geometric correction
Accuracy validation

Value-added
Image analysis
Classification
Change detection

From Earth Observation to GeoAnalytics

Harnessing the power of imagery for dependable decision-making.

Agriculture

Tipping & Cueing

Disaster

Urban Planning

Monitoring

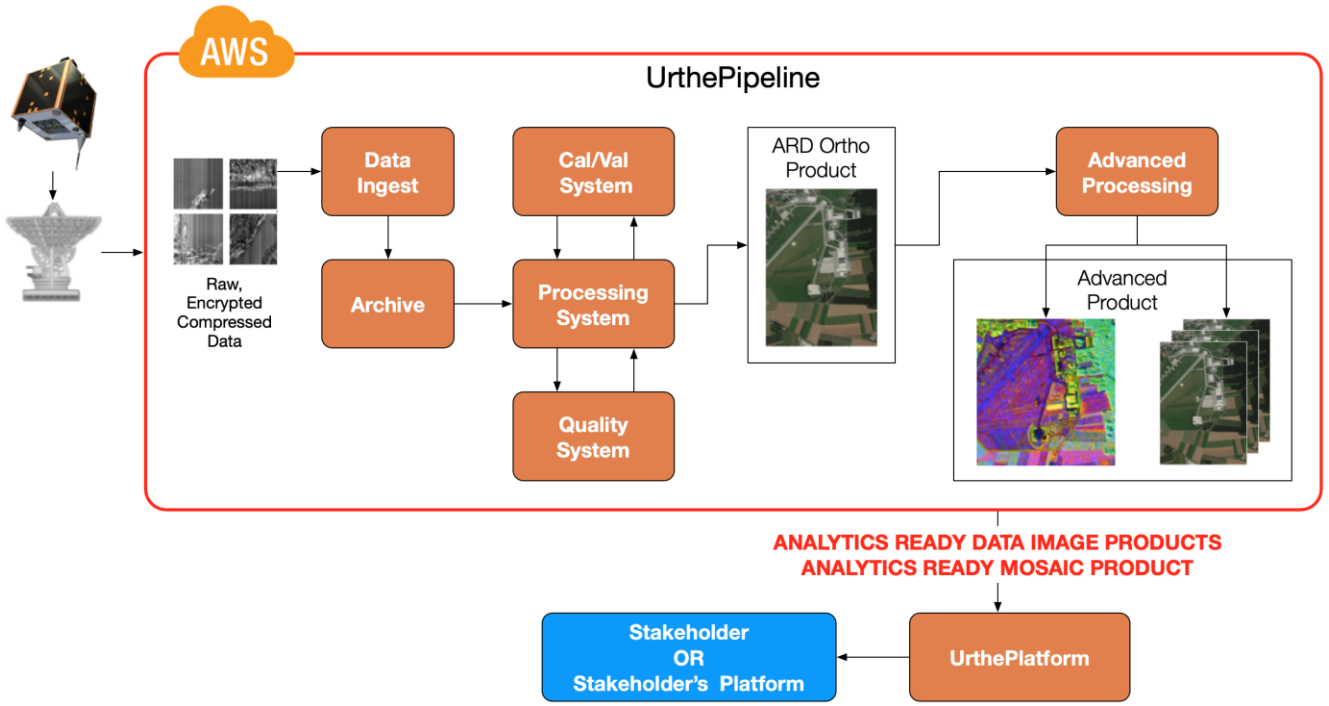
Change Detection

UrthePipeline

…and tailored solutions to meet your challenges

UrthePipeline – Machine Learning for Earth Observation

Designed for quality, automation and scale



Radiometry

High-quality Processing, Calibration/Validation and Quality System

Processing

Fully cloud-native, automated and able to handle massive amounts of raw data

Transforms **raw** downlinked satellite data into scientific machine-learning/ **Analytics Ready Data** products

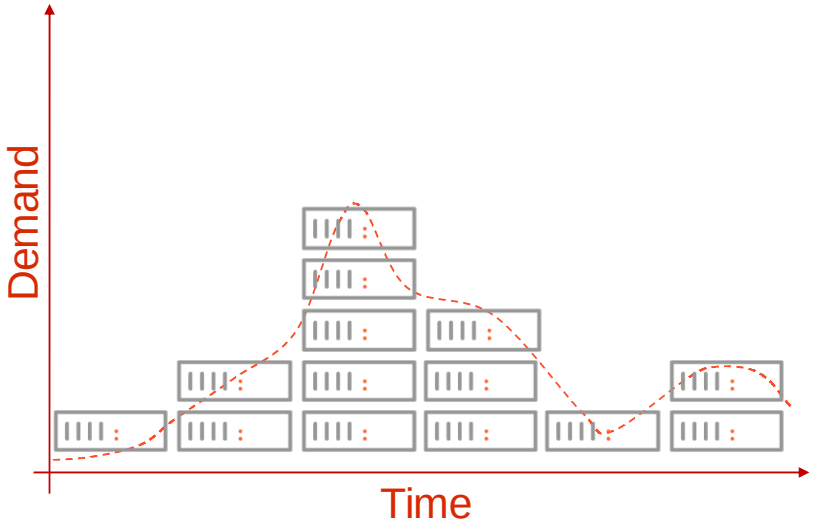
UrthePipeline – Fully Cloud Native

- Can scale to thousands of datasets
- Can generate products in minutes for high-priority orders

# of virtual machines in parallel

UrthePipeline – Fully Cloud Native

Designed for system scalability and elasticity



Scalability

Efficient customer product distribution via the cloud

Dynamically scale compute, quickly, based on the needs of the customers and projects, allowing for control over performance

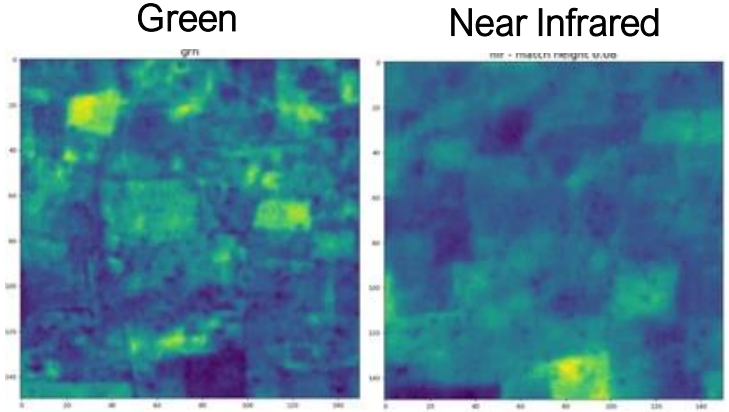
Security

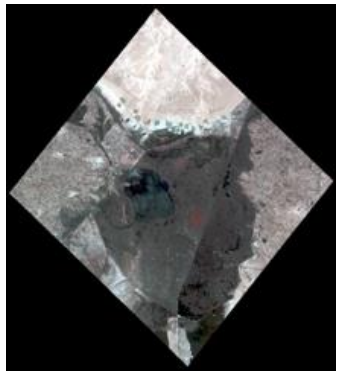
Secure data compute, storage and delivery through VPCs, encryption and user authentication

UrthePipeline – Quality and Automation

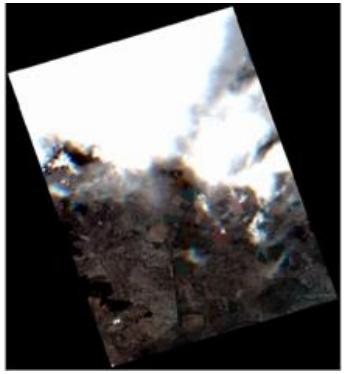
Designed for high-quality products obtained in a cost-effective way

- ✓ On-going and continuous calibration ensures excellent image quality even over radiometrically uniform areas
- ✓ Handles non-visible image registration challenges with differing modality (e.g. visible to NIR)
- ✓ Handles complex scenes using Specialized Ground Control Point marking

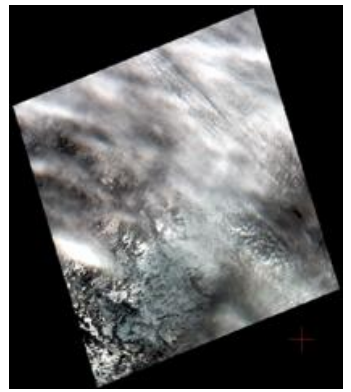




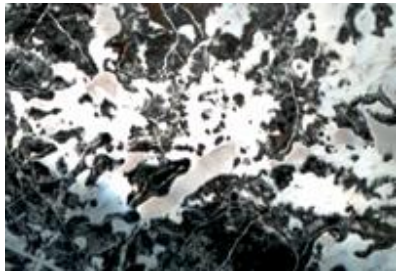
Clear:
0.44 Pixel Error



Partial cloud:
0.46 Pixel Error

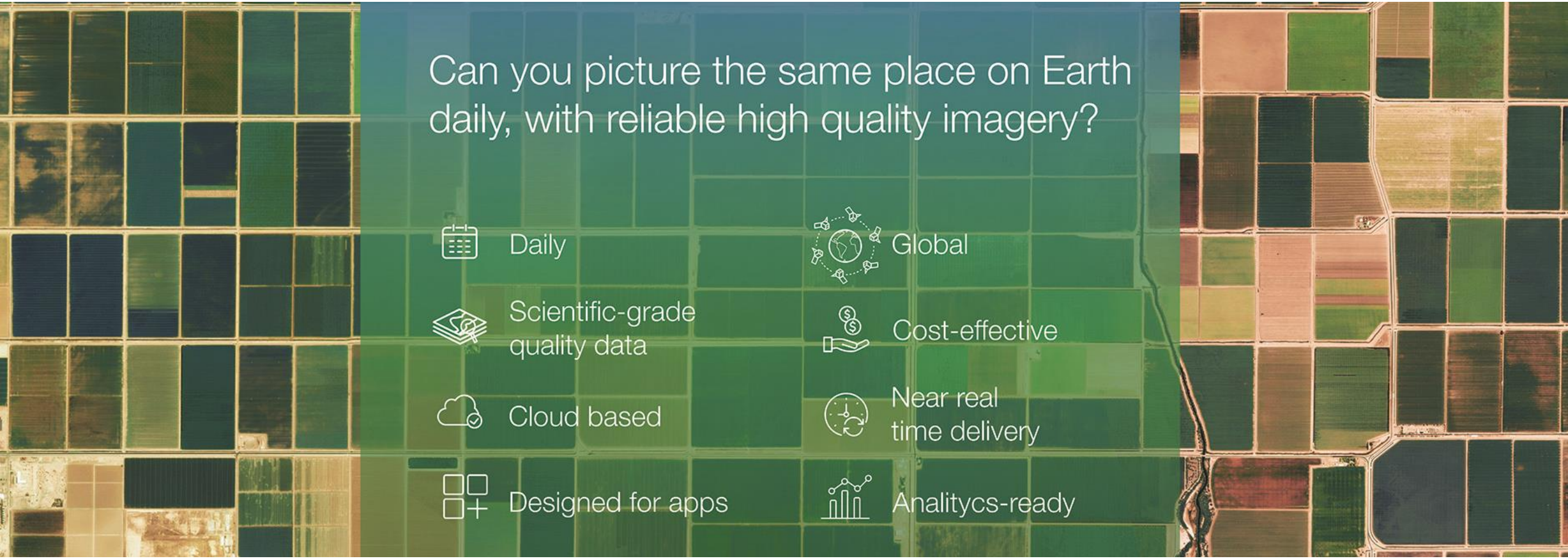


Cloud and snow:
0.5 Pixel Error



UrtheDaily with UrthePipeline

Analytics-ready data directly into your application, fresh, daily



The UrtheDaily constellation

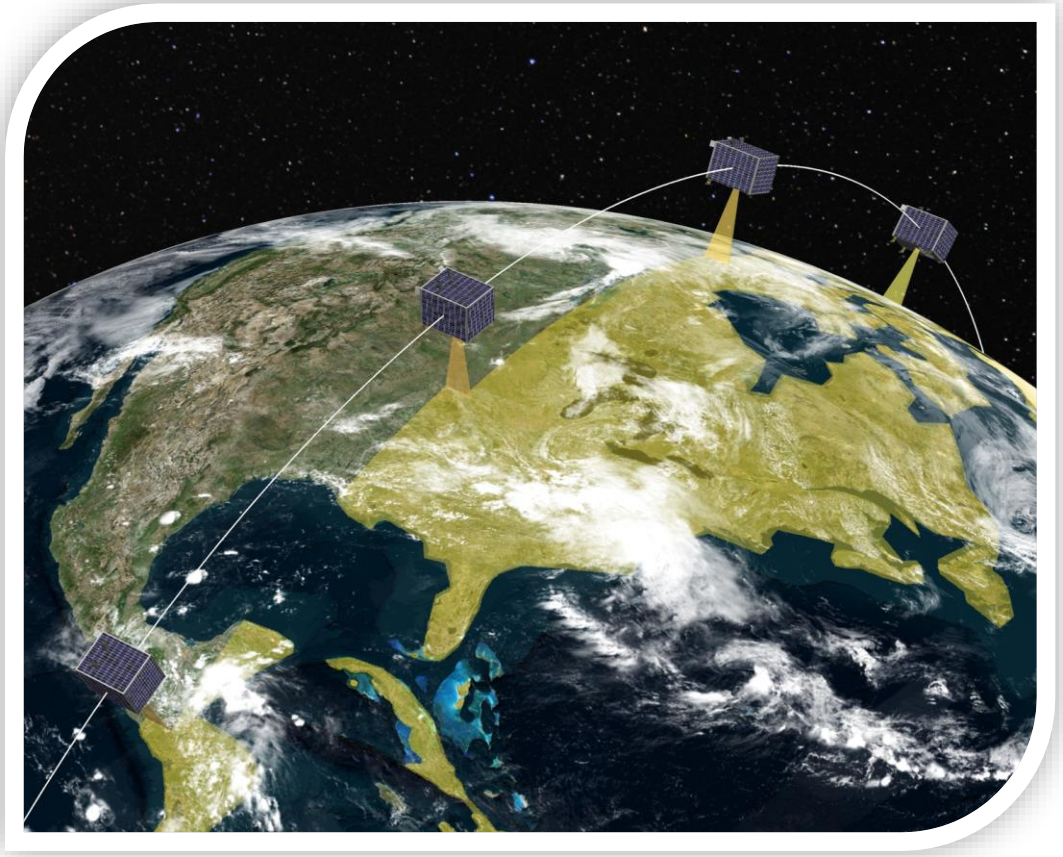
deimosimaging
an urthecast company

The future is here: UrtheDaily

Designed & Optimized for Geoanalytics at Scale

The world's first EO system designed, from the ground-up, to power machine-learning and AI-ready geoanalytics applications, on a global scale:

- ✓ Spectral bands optimized for geoanalytics and cross-calibration with other sensors (e.g., Sentinel-2)
- ✓ High SNR for geoanalytics
- ✓ Ultra-stable spacecraft pointing system and precise orbit control enabling high geo-location accuracy
- ✓ Wide swath enabling improved calibration
- ✓ Automated cloud-based processing system designed for scale
- ✓ highly accurate cloud masks to allow direct use in machine learning & AI algorithms



UrtheDaily: Unprecedented Data Quality

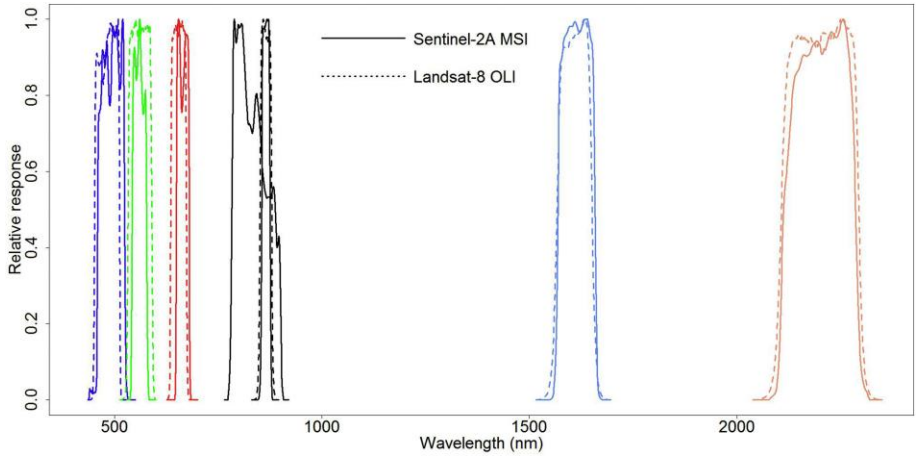
Enabling Transformational Insights

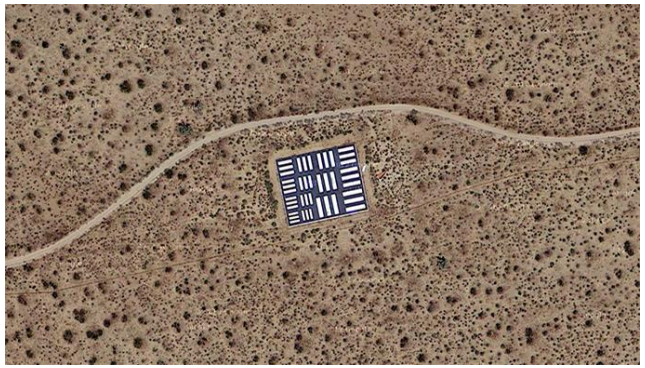
A state-of-the art constellation designed to meet market needs while remaining cost-effective.

The **spectral bands** selected to match Landsat-8/Sentinel-2/Deimos- 1 bands to ease the constant and automatic in-flight cross-calibration.

The presence of a **narrow coastal/aerosol Blue band**, specifically designed for atmospheric analysis, greatly helps in correcting for atmospheric effects.

The system is designed to provide a high SNR and bit depth that goes a long way to reducing measurement uncertainty.





UrtheDaily: Constant data collection

Cost-effective solution useful for global change detection and geoanalytics

The whole Earth's landmass and large maritime areas, every day at 5m / pixel with multi-band spectral diversity aligned with Sentinel-2

Fully automated tasking, collection, downlink, backhaul and data processing, cataloguing and delivery

Data available same-day via cloud-based platform

Service to start in 2022