

SATSURE

Unlocking Value of EO data

Geosmart India 2023



KaleidEO

Bangalore, India
London, UK
Philadelphia, USA

We are a Global Deep Tech Company



150+ Employees

5 Offices

300+ Districts in India

18+ Crops and growing

Our Investors:

-  **BARING PRIVATE EQUITY PARTNERS INDIA**
-  **HDFC**
-  **promusventures**
-  **ADB Ventures**
-  **ICICI Bank**
-  **kotak**
Kotak Mahindra Bank
-  **ON**
- OMIDYAR NETWORK**

We leverage advances in satellite remote sensing, machine learning, big data analytics and cloud computing to help enterprises make smart decisions.

Creating an Impact Across Sectors



Agriculture

Farm credit risk assessment, crop damage estimate, crop life-cycle monitoring, crop yield prediction, crop area estimation, sowing & harvesting prediction



Infrastructure

Roads, buildings & other critical infrastructure construction change detection, geocoding, building footprint identification, damage detection due to natural disasters



Climate Action

Drought & flood monitoring prediction, agroforestry remote sensing, climate hazard modeling, air quality monitoring, surface & groundwater prediction, water quality estimate



Our Product Suite

Global Data Infrastructure Problem



Difficult to understand



Expensive to collect



Laborious acquisition



Dubious accuracy level



Unstructured and unscalable

We Solve the Data Problem

SatSure solves problems at the nexus of agriculture, infrastructure and climate action. The enterprises and geographies we work in have a poor data infrastructure with heavy dependency on field staff to execute tasks and take decisions.

Our products and solutions help solve real problems aligned with six sustainable development goals. Our solutions are built using earth observation data which allows us to create an impact at scale.

SATSURE SPARTA

SatSure Sparta is a data-as-a-Service platform that provides access to ready to analyse datasets in crop, land, water and climate categories, delivered through APIs. It finds diverse applications in the agricultural and climate action value chain for people and organisations interested in developing internal applications for their problem statements.

SATSURE SAGE

SatSure Sage is a suite of applications that facilitates smart decision-making in managing agricultural loans for lending institutions. It leverages the power of satellite data and location intelligence to bridge the information gaps, which helps lending institutions scale smartly while reducing operational costs and assisting farmers in accessing credit.

SATSURE SKIES

SatSure Skies is a high-resolution, change detection product suite for infrastructure, utility and energy applications. The product is helping clients create efficient processes through a digital transformation while reducing Capex and Opex costs.

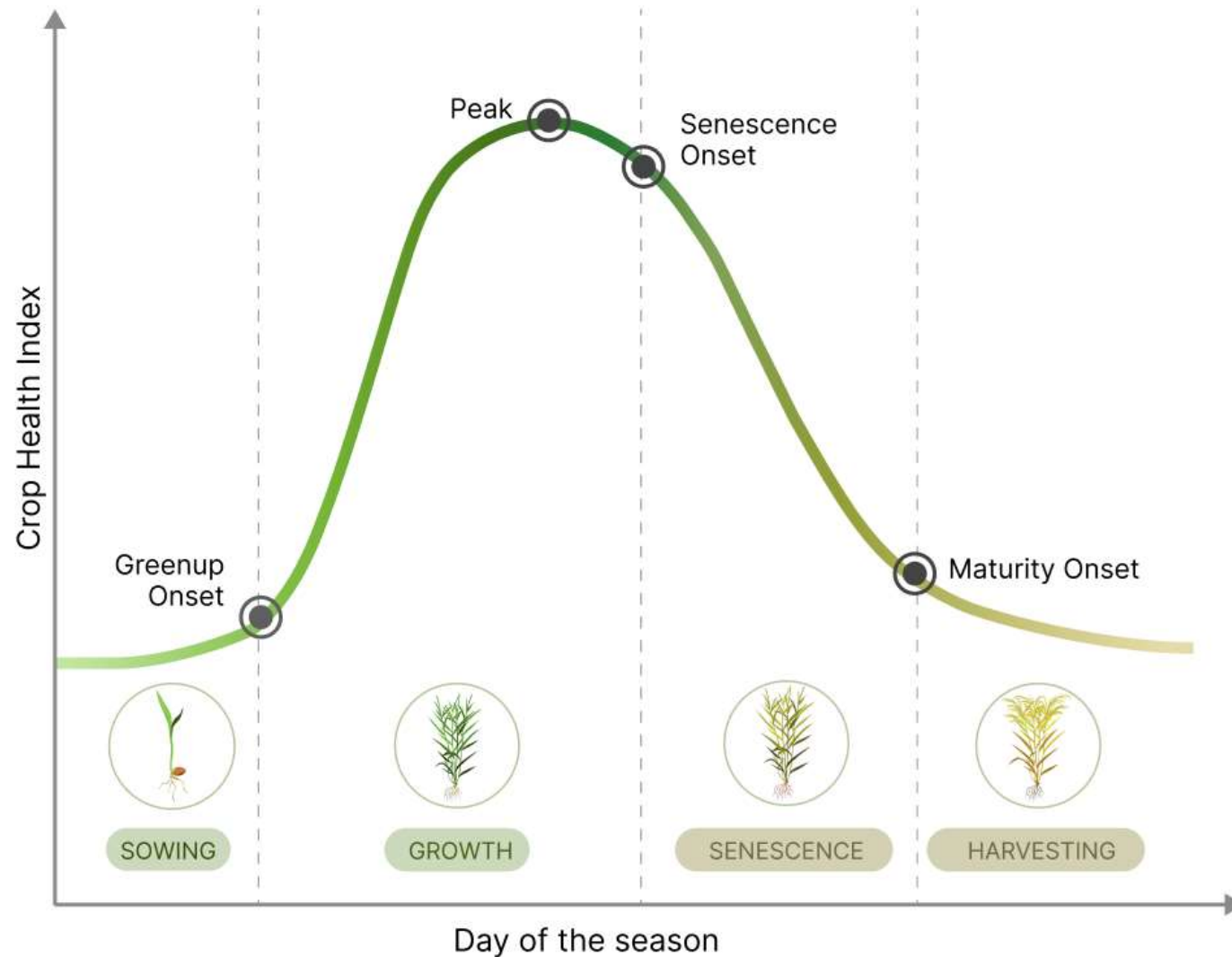


A Platform for Agriculture, Forestry, and Climate Action Datasets



Promoting access to ready to analyse datasets for the AgTech and ClimateTech ecosystems

Creating Digital Twins



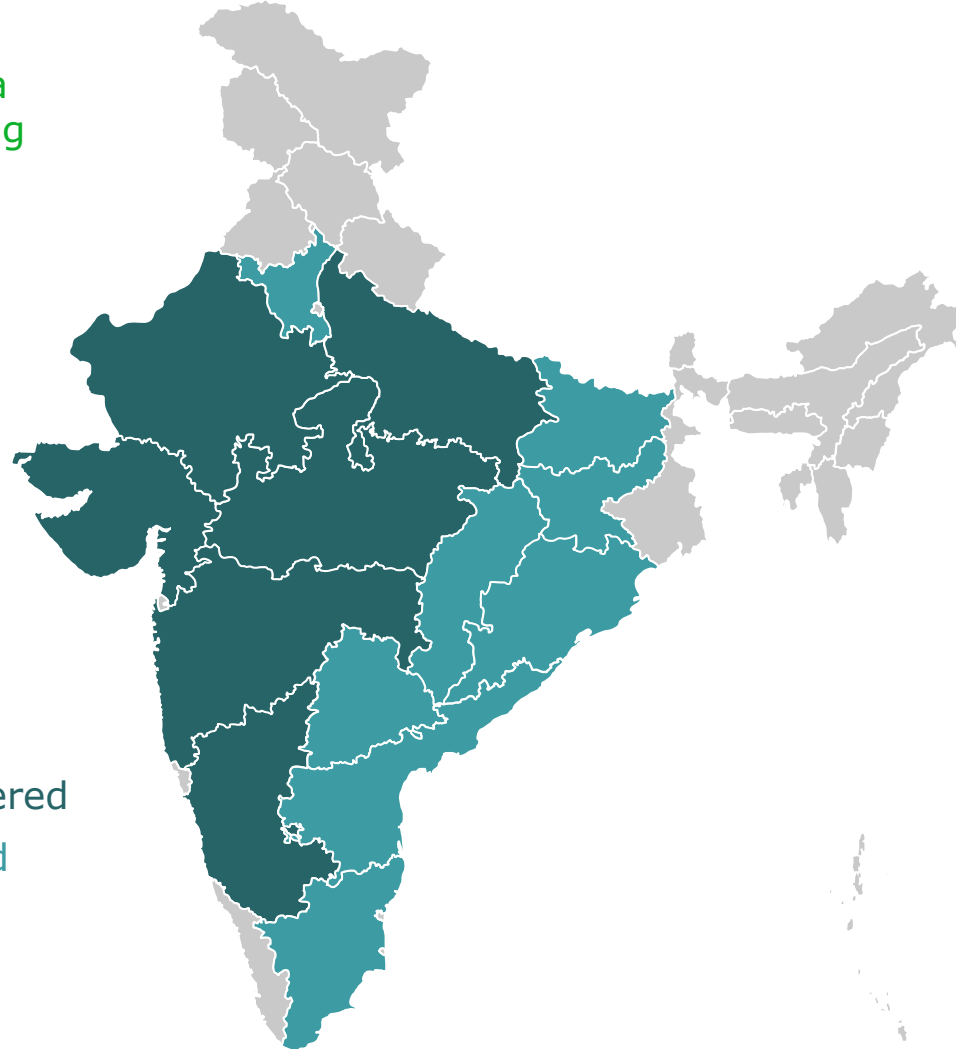
"A digital twin is a virtual representation that serves as the real-time digital counterpart of a physical object or process."

Creating digital twins of vegetation involves mimicking crops and forest growth models with remote sensing and abiotic parameters like moisture and temperature for components like soil.

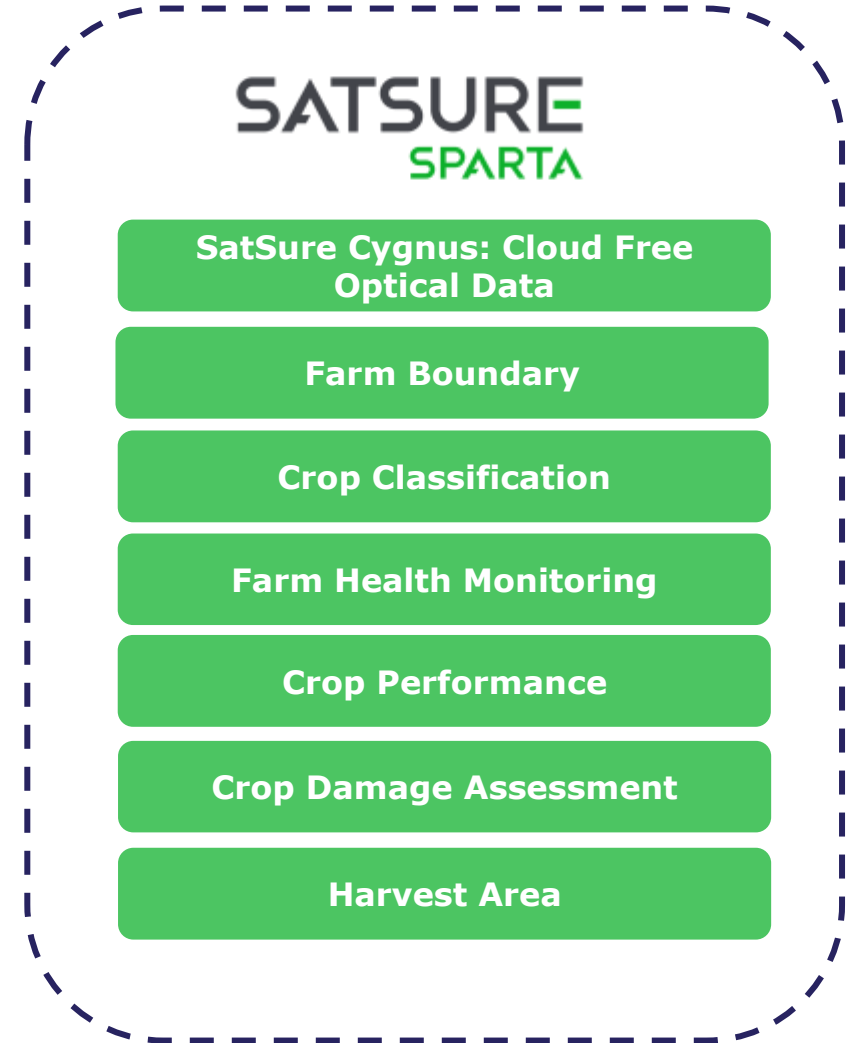
SatSure Sparta : Unlocking value for Agritech

Enabling continuous remote field monitoring via suite of products in:

5+ countries in world
300+ districts in India
16+ crops and growing



- Completely covered
- Partially covered



Improve Operational Efficiency And Expand Business

Efficient **DEMAND PLANNING** and **INVENTORY MANAGEMENT** based on in season crop production data

IMPROVE SALES PLANNING

Know exactly when, where and what to sell by identifying areas covered with a specific crop and updates on crop stages at farm level

STRATEGIC SELLING

Identify ideal customer profiles for specialized products by locating farm boundaries and farm performance



Make Farms Smarter From Space

SATSURE



Continuous **CROP MONITORING** via seamless integration with all your internal digital platforms

INCREASE OPERATIONAL EFFICIENCY

Monitor field's performance through vegetative indices in near real time to make optimized decisions on resource mapping and utilization

IMPROVE FIELD SCOUTING

Empower field teams to digitize farm locations through assisted geotagging and streamlining data collection and management process through our farm monitoring app – Crop trails



A Loan Lifecycle Risk Management Product Suite for Lending Institutions



To Enable Financial Inclusion for Farmers

A solution for Agriculture Lending

SATSURE

Loan Collections
Analytically drive field force management to reach customers intelligently and collect efficiently



03

Portfolio Monitoring
SaaS-based web terminals for loan monitoring at individual and portfolio level



02

Underwriting
Asset (land) scoring and 18 historical farm metrics through instant report generation to improve TAT in crop loan processing



01



Localised intelligence from Space



For efficient resource planning to optimize operational and business costs.

Our Capabilities in Infrastructure Monitoring

SATSURE

Renewable Energy

- Site selection for solar & wind farms
- Counting of solar panels & change detection
- Automated detection of solar farms
- Estimation of solar energy production



Asset Monitoring

- Asset detection & counting
- Land use detection
- Damage calculation of the assets
- High resolution elevation models



Infrastructure & Utilities



Airports

- Generation of electronic terrain & obstacle data (eTOD).
- Change detection of obstacles in vicinity.
- Monitoring of runways.
- Digitisation of aerodrome mapping database

Oil & Gas

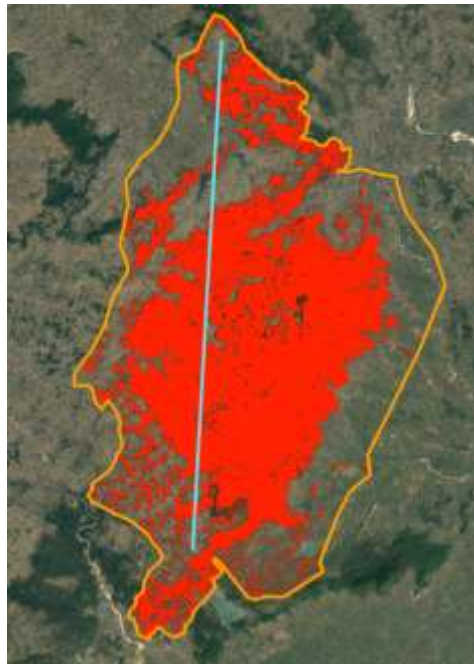
- Pipeline optimal route planning
- Pipeline corridor monitoring
- Oil storage calculation
- On-shore site monitoring

- Planning & optimization of routes for power transmission lines & roads
- Construction site detection & change monitoring.
- Post disbursement monitoring
- Flood risk assessment
- Urbanization heat maps

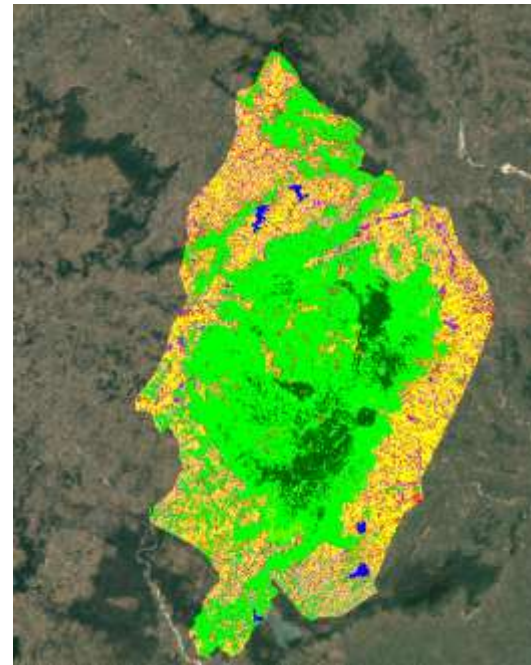
Route Optimization for Linear Projects



Coordinates of substations between which the transmission line is supposed to be installed, is plotted along with the bee-line



The wildlife sanctuary, forests or any restricted zones are identified with the area of interest



Land Use and Land Classification is being carried out on the high-res satellite imagery for identifying built-up area, shrub land, vegetation, agricultural land, forestry, etc



Using DEM, auxiliary data land use and land classification for the area of interests, multiple options for the routes are proposed

LULC and DEM helps understand the geography and its features for effectively planning any large- and small-scale project implementation.

Encroachment Identification in the Asset corridors / at the site



- Identifying Risks associated with encroachment by vegetation or any other objects in the transmission line corridor.

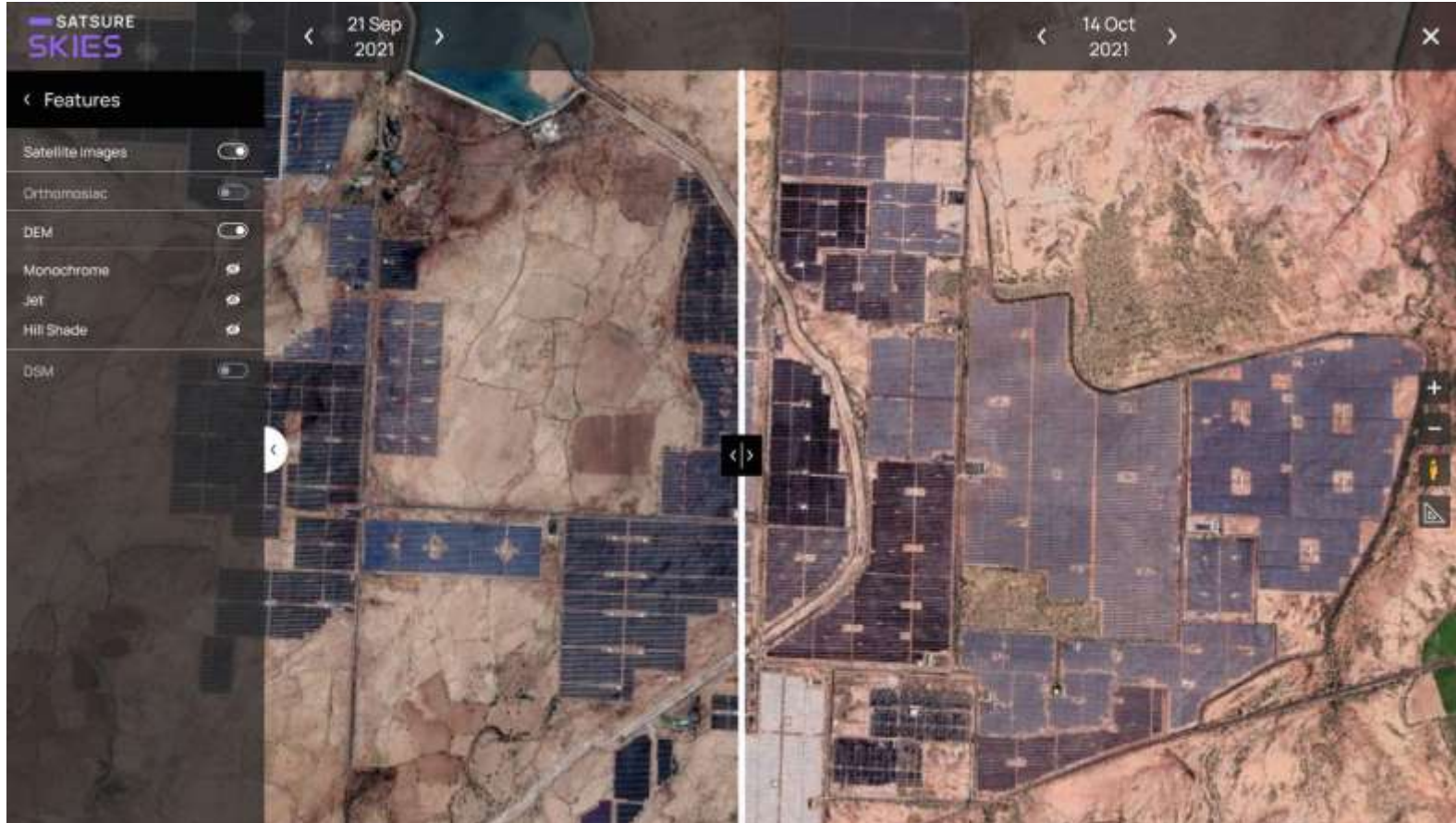
Risk Identification during Floods



- Identification of flood risks at area of interest.
- Identification of extent of flooding.
- Identification of flooding of waterbodies near the infrastructures or settlements.
- Potential depth of flooding.
- Frequency of flooding

Total Risk contribution for a given road stretch - Medium	
High	50%
Medium	30%
Low	20%

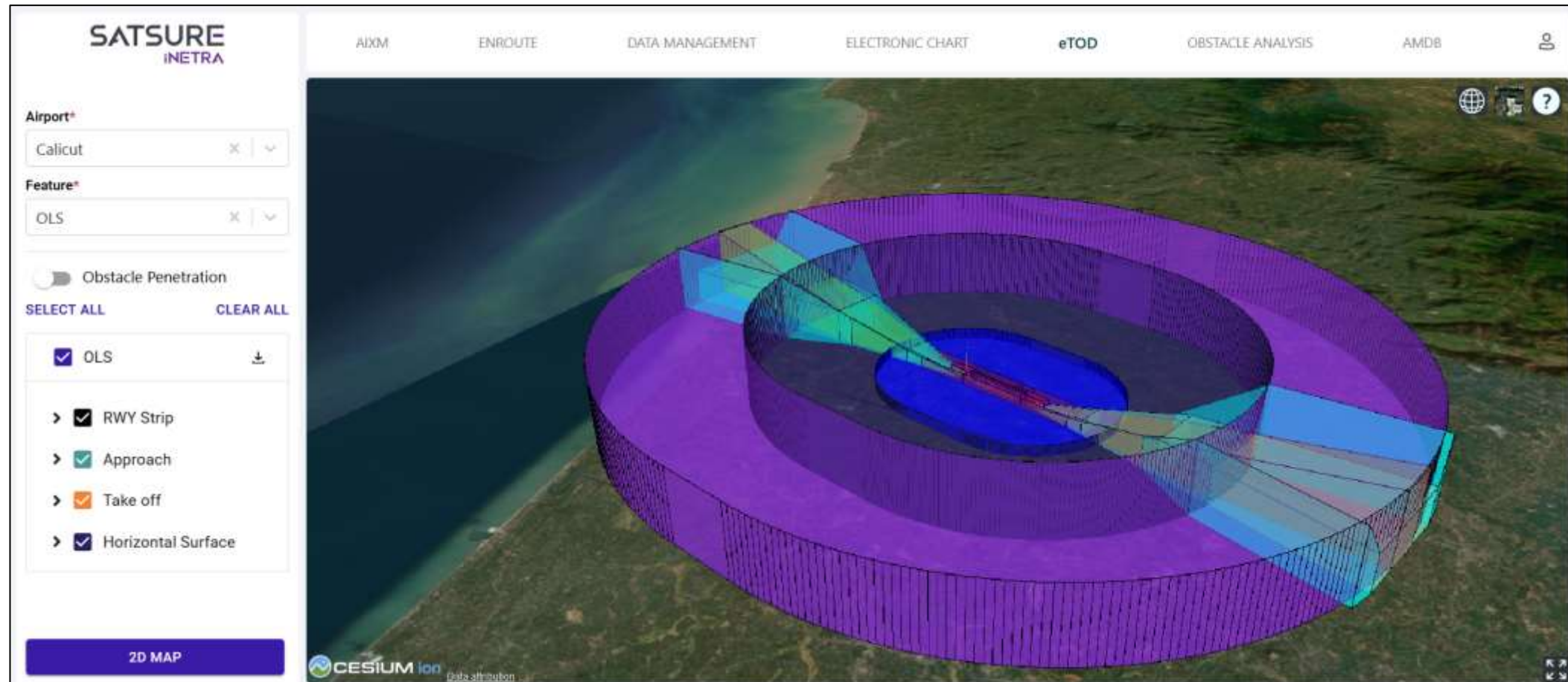
Construction Monitoring



Value Proposition

- Monitor **progress of construction** at set interval
- Monitor **as built vs as designed**
- **Manage inventories & resources** efficiently with on ground
- Actual **on ground updates** **without manual intervention** for milestone-based payment releases and / or update report from EPC companies

3D view of Obstacle Limiting Surfaces



Aerodrome Mapping showing spatial features of an airport

SATSURE INETRA

AIXM ENROUTE DATA MANAGEMENT ELECTRONIC CHART eTOD OBSTACLE ANALYSIS AMDB

Airport*
CHENNAI INTERNATIO... X | v

Features
SELECT ALL CLEAR ALL

- > RunWay
- > Apron
- > Taxiway
- Parking Bayline
- Parking Bay Points
- Runway Marking

Export GeoJSON

200 m
500 ft
Google

Name: PBT2
Latitude: 12° 59' 48.88" N
Longitude: 080° 10' 46.78" E
Elevation: 13.2

Modify Point
Delete Point

Map data ©2023 Terms of Use Report a map error

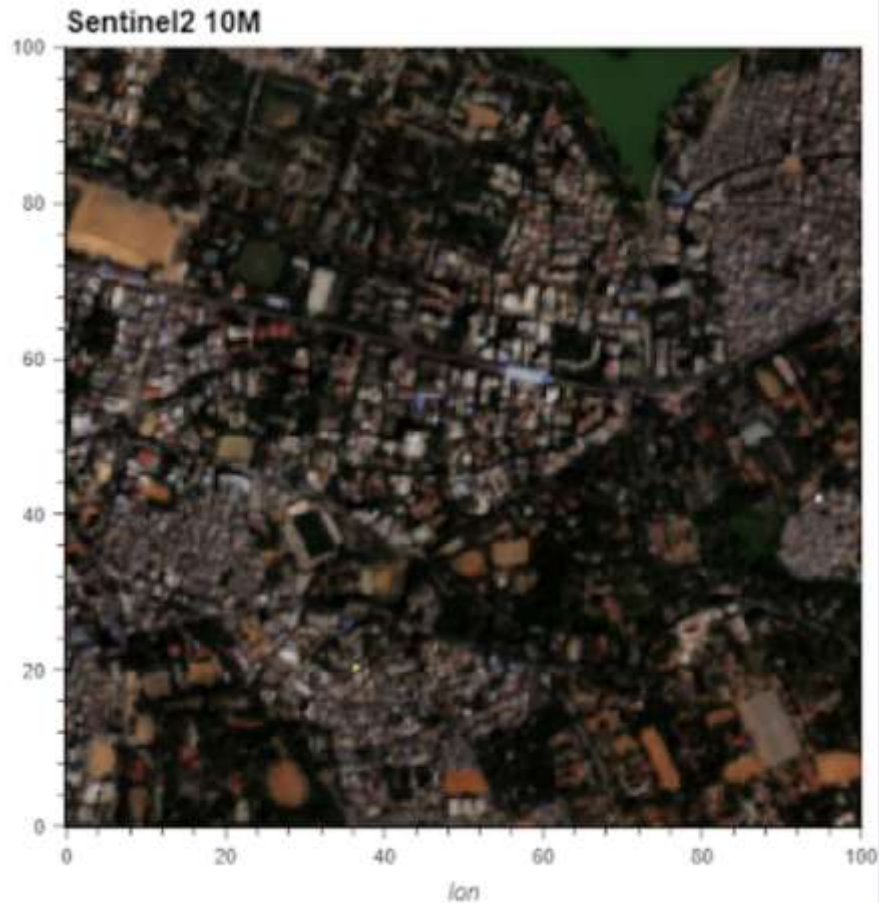
Super-Resolution

Input Imagery

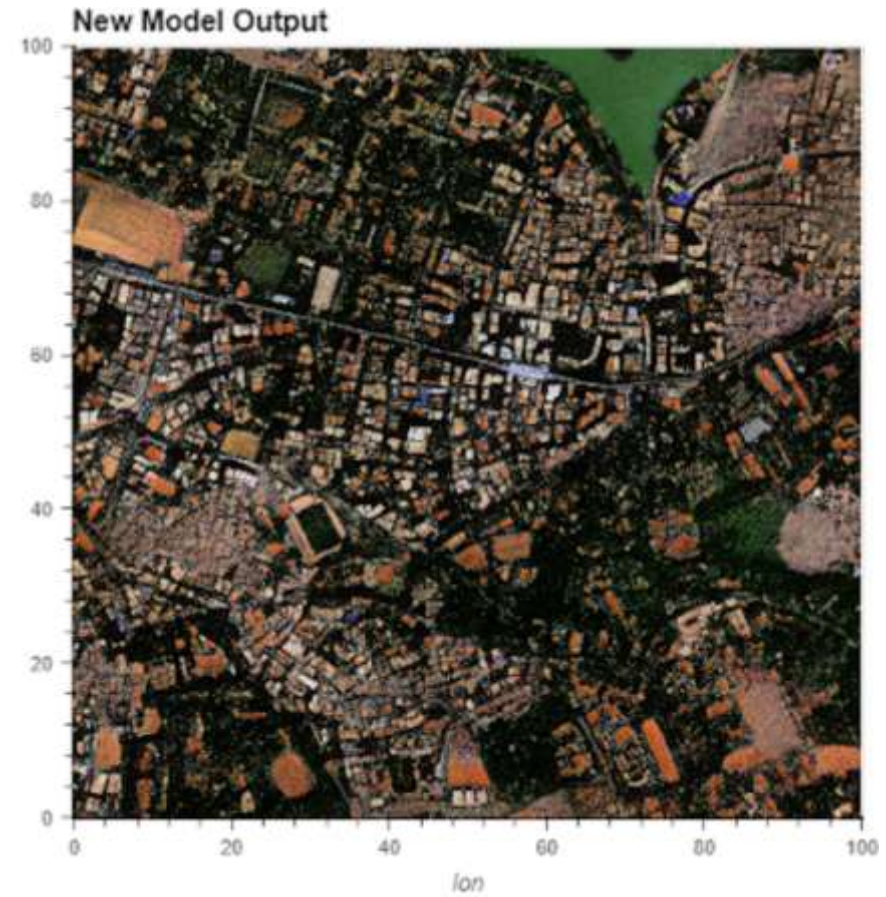


SR 2.0 Imagery





4X Resolution enhancement



700k+ images used for training library

Multi-resolution RGB input capability

We are Growing Upstream



KaleideO



VISION

Making Earth Observation Data & Insights Accessible



MISSION

Increase the Value of Information Generated Per Bit



Mission Specifications & USP



Mass < 200 kg

AI/ML based onboard processing

Downlink only relevant images and insights.



Optical Payload

Large field of view giving a large swath of ~65 km

Capability to generate oblique/stereo images.



Payload Specs

Imaging in RGB+NIR, PAN & Red Edge

1.25 m GSD Spatial resolution in PAN from Very Low Earth Orbit



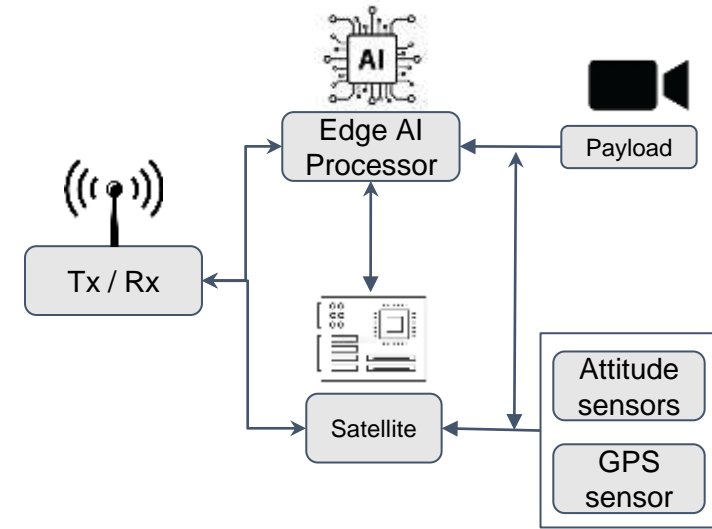
Revisit

Near daily revisit

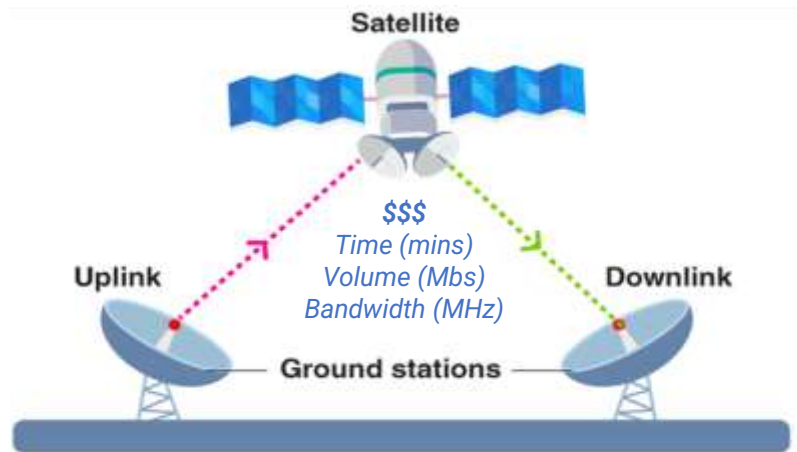
~9 days at-nadir.
~ 1 days off-nadir.
(> 90% Global Coverage)

Edge Data Processing

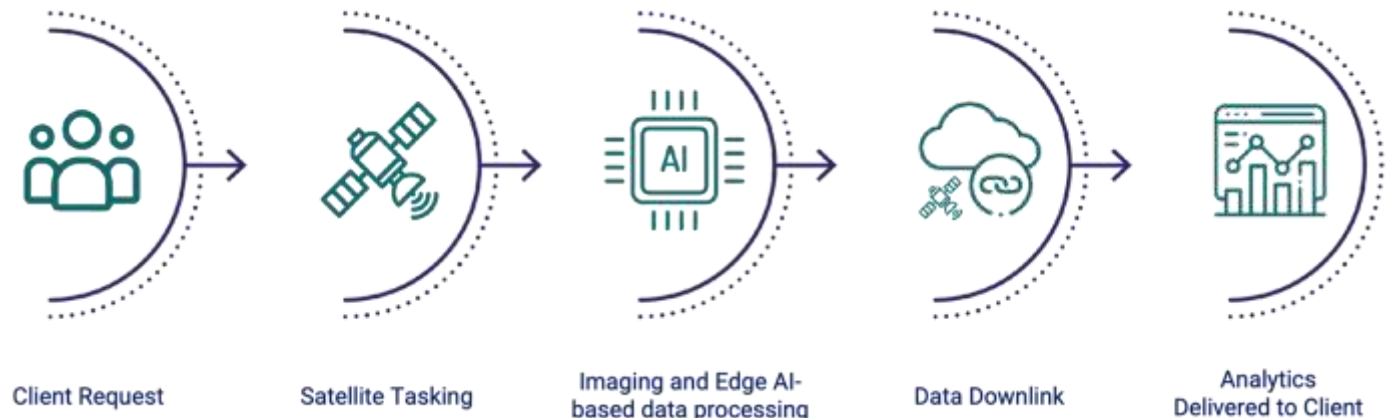
Take payload data processing to the satellite platform
 (Proof of concept demonstrated in September 2023)



Requirement



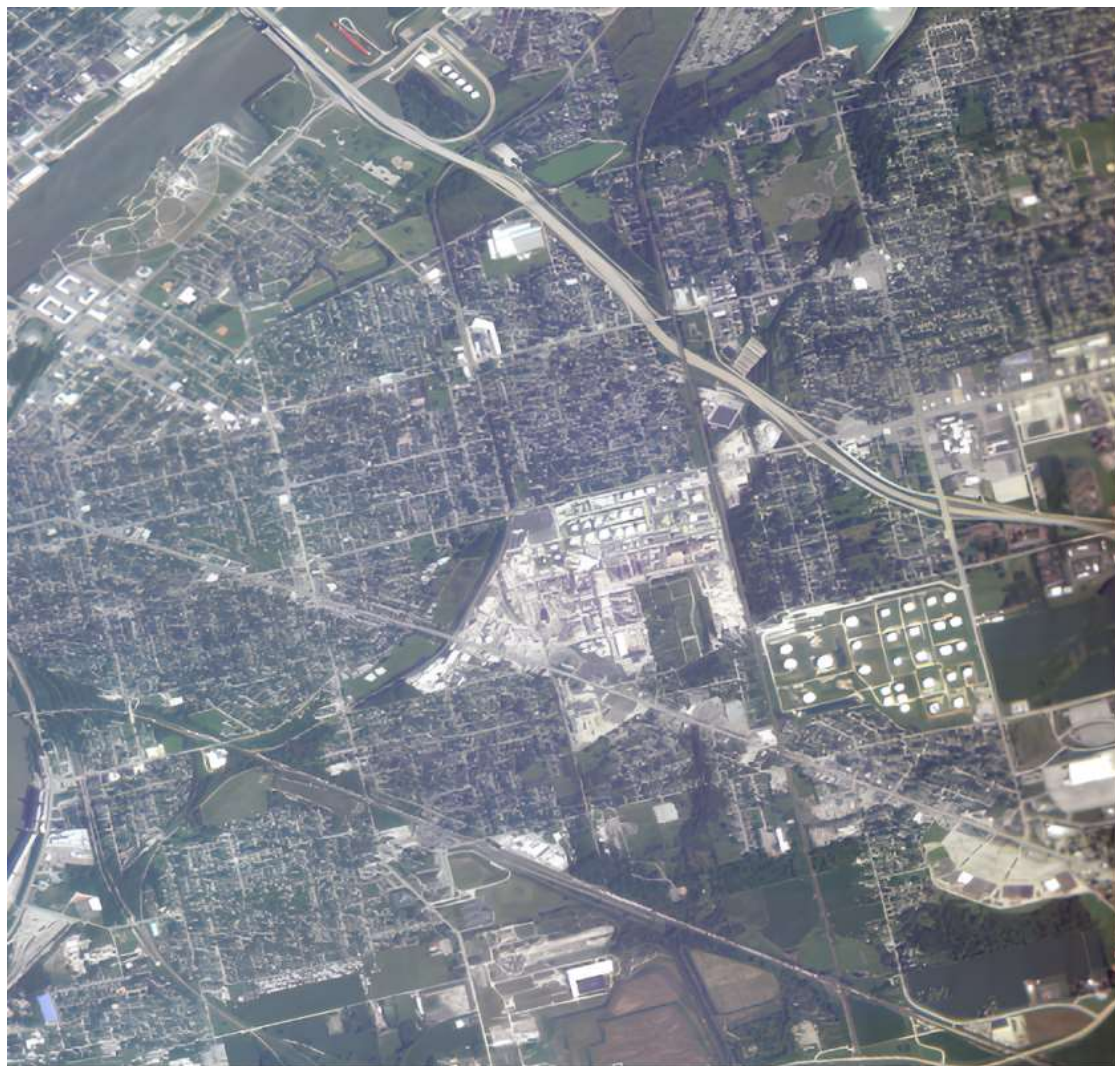
Optimize volume of data downlink
 Direct turn around time and cost implication

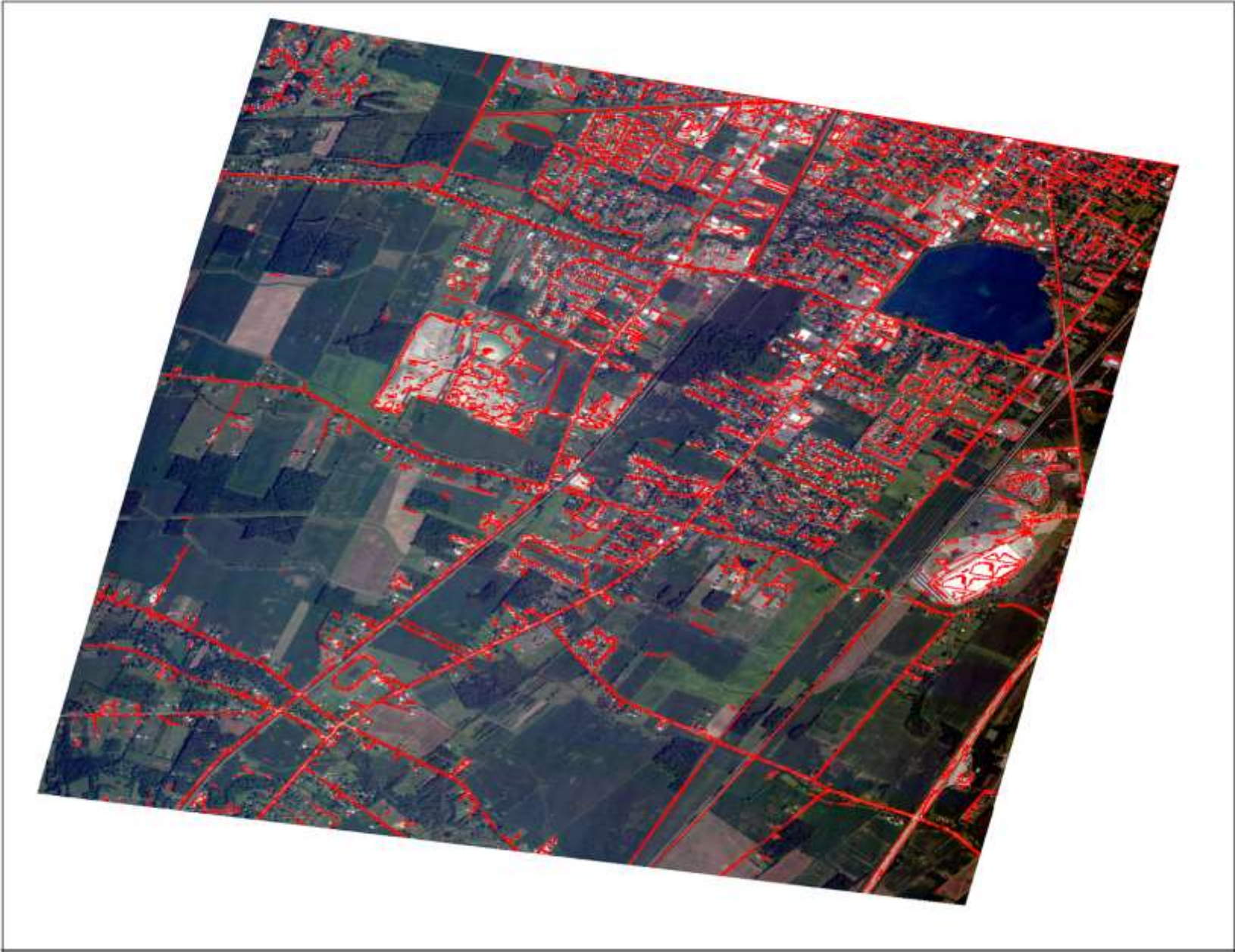


Better turn around time to products - faster generation of insights



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Applications of EDGE



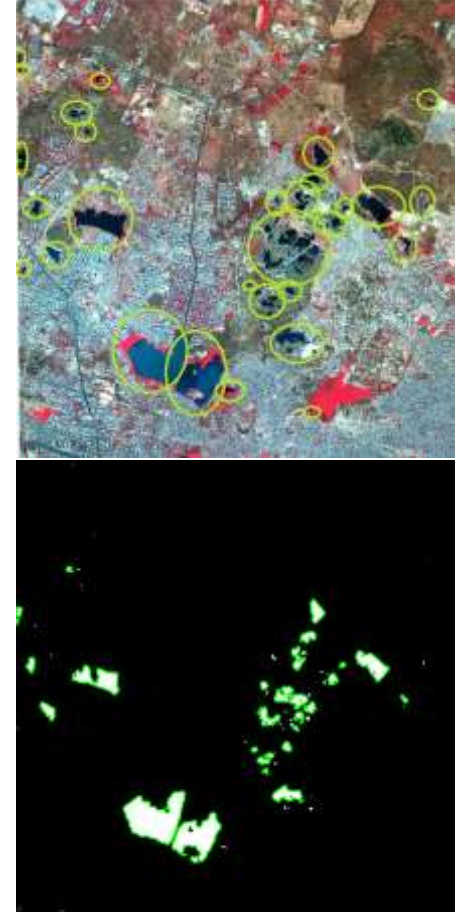
Building footprint detection



Road network detection



Urban tree counting



Urban waterbody counting

Creating a Global Impact

SATSURE



4 million Farmer Loans

4 Million Farmer Loans
Disbursed Through SatSure
Sage



400,000 Claims

400,000 Farmer Claims
Settled Using SatSure's
Insurance Services



12,000 Civilians

12,000 civilians rescued
during 2018 Kerala Floods
Using SatSure's Solutions



4 Patents

4 Patents Applied in Areas
of Remote Sensing and
Data Science
Two patents have been
received



2019: ADB Ventures Grant
Future Food Asia, 2019 -
Singapore



2018: Agriculture Grand
Challenge (Ministry of
Agriculture, India)



2019: Global Agriculture
InsureTech Challenge (World
Bank)



2019: MIT Inclusive Innovation
Challenge (Technology Access)



2017: Best AgTech Company
Award, in collaboration with
Govt. of Andhra Pradesh



Member of the World Economic
Forum's Global Innovator
Community

Thank You

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