Prepared For:

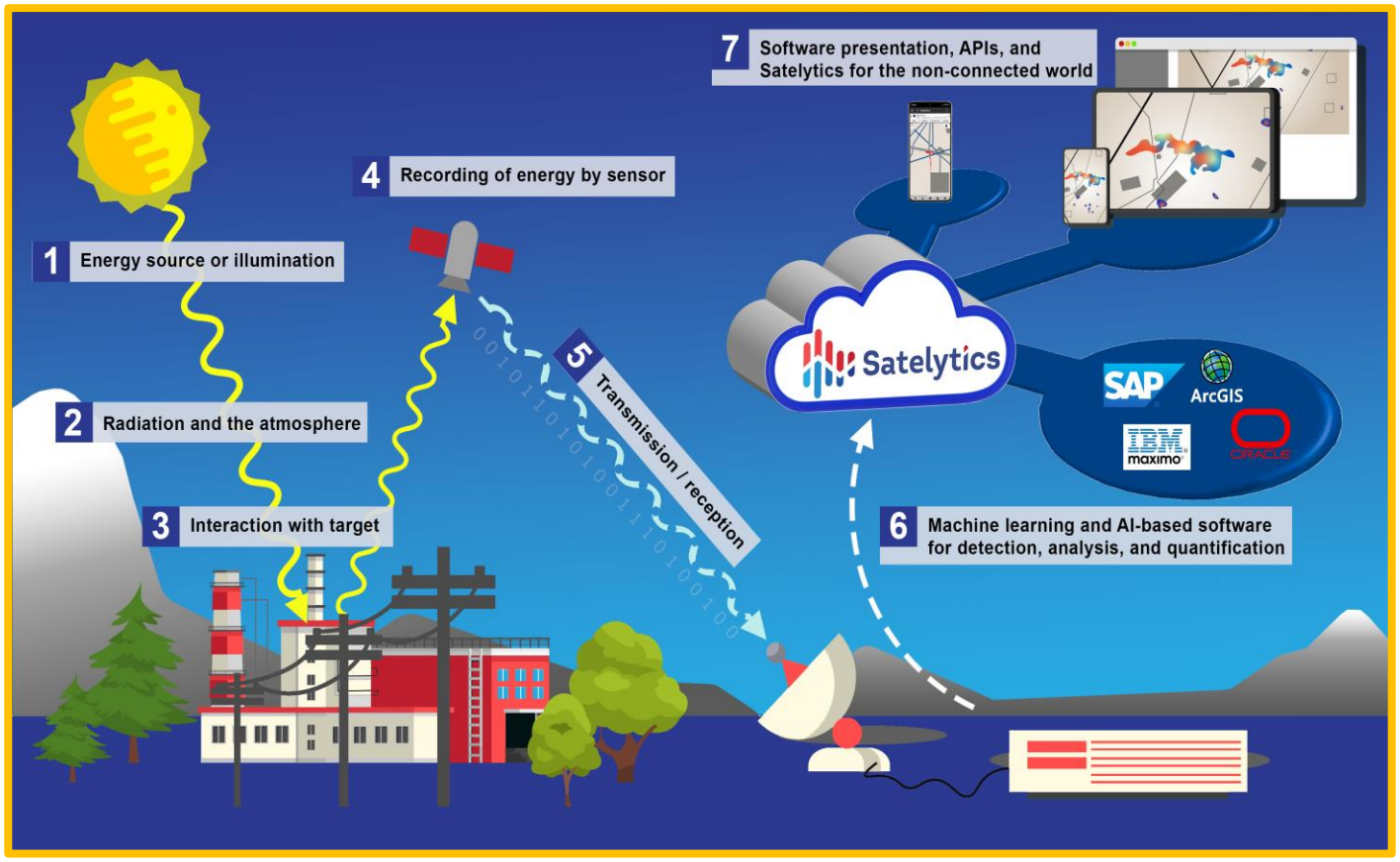
How Satelytics Works

Data Acquisition

Satelytics takes in multi and hyperspectral data from a variety of third party sources including enterprise satellite data providers using conventional and nano-satellite arrays, plane or drone aerial imagery, and fixed or persistent camera platforms.

- Satellites
- Nano-satellites
- Aircraft
- Drone/UAV
- Fixed/Persistent Platform

How Our Solution Works



1) **Energy Source or Illumination** - sunlight illuminates the target.

2) **Radiation and the Atmosphere** - atmospheric distortion of the reflected energy is accounted for in the analysis.

3) **Interaction with the Target** - energy reflects off the target and is distorted in the reflection.

4) **Recording of Energy by the Sensor** - a sensor records the reflected electromagnetic radiation.

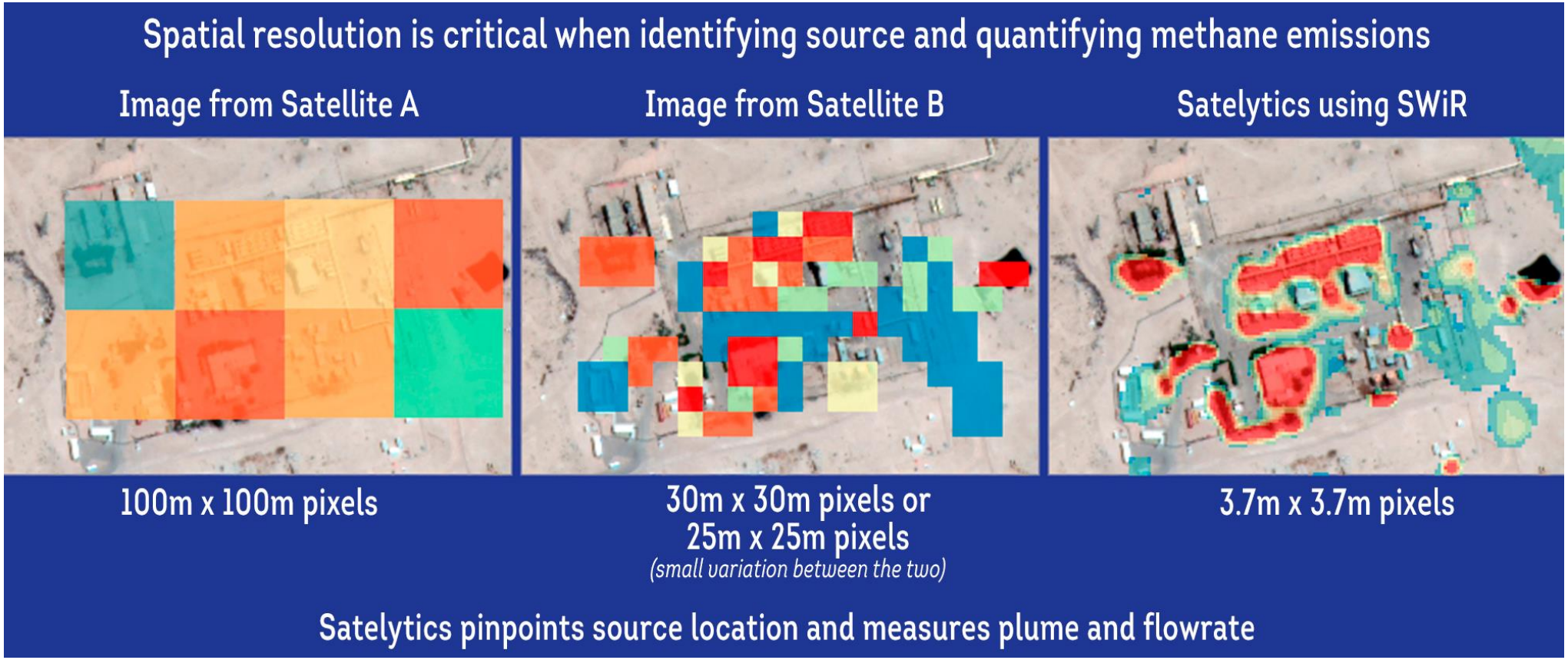
5) **Transmission, Reception, and Processing** - energy recorded by the sensor is transmitted, then received and processed at a ground station.

6) **Software Detects, Analyzes, and Quantifies** - the data is analyzed using artificial intelligence-based software — algorithms designed to extract and quantify measurements of the target.

7) **Presentation of Analytics** – Data and imagery is presented in a customer-defined form to allow decision-making and immediate action.

8) **Device Platform** – Data, analytics, and imagery are accessible on smartphones, tablets, and browsers. Alerts are also delivered by text message.

Alerts with Specificity, Location, and Measurement, Not Directionless Data



- For methane: 3.7-m by 3.7-m pixels enable source identification at the component level
- For all other measurements, 30-cm to 46-cm resolution yields specificity to help you get the earliest possible notification of trouble.

Satelytics

GEOSPATIAL ANALYSIS

Physical Analysis

- Change Detection
- Encroachment Analysis
- Land Use Identification
- Land Movement Analysis
- Population Identification
- Bathymetry
- Relative Sediment
- Turbidity
- Total Suspended Solids
- Surface Water Temperature
- Theft Detection
- Digital Terrain Model
- Digital Surface Model

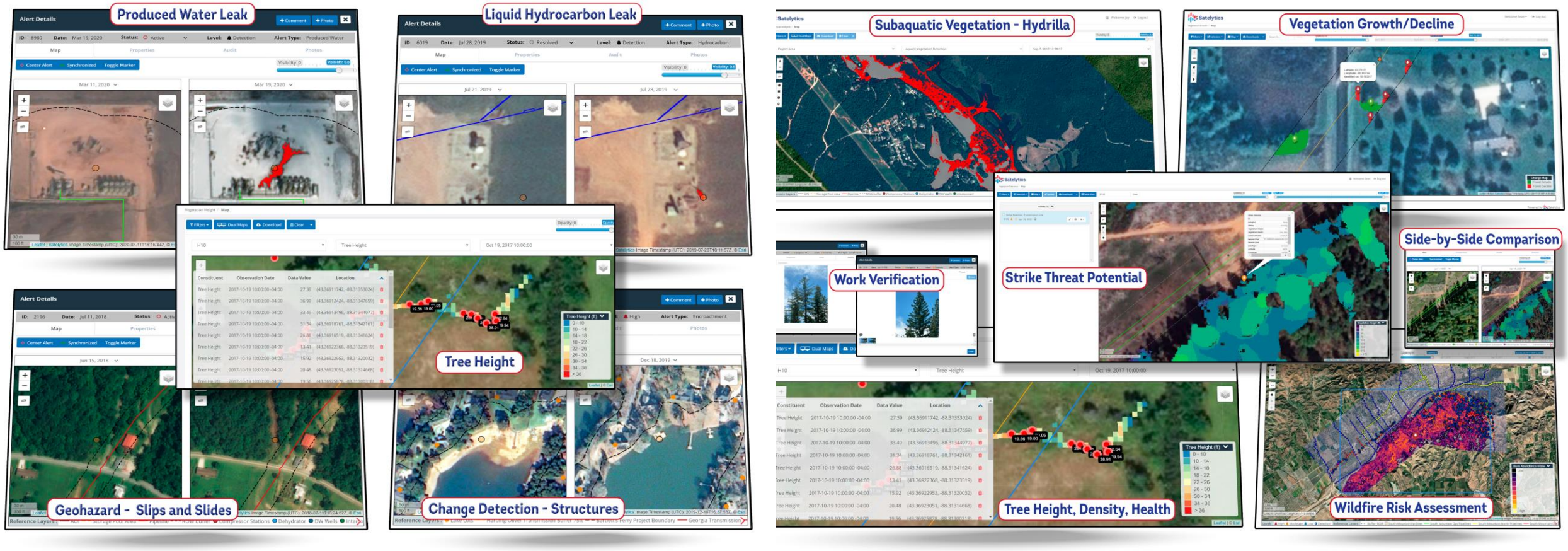
Chemical Analysis

- Liquid Hydrocarbon Leak Detection
- Produced Water Leak Detection
- Methane Leak Detection (on land)
- Methane Leak Detection (over water)
- Acid Mine Drainage
- Phosphorus
- Arsenic
- Barium
- Calcium
- Chloride
- Copper
- Iron
- Manganese
- Molybdenum
- PFAS
- Nitrogen
- pH

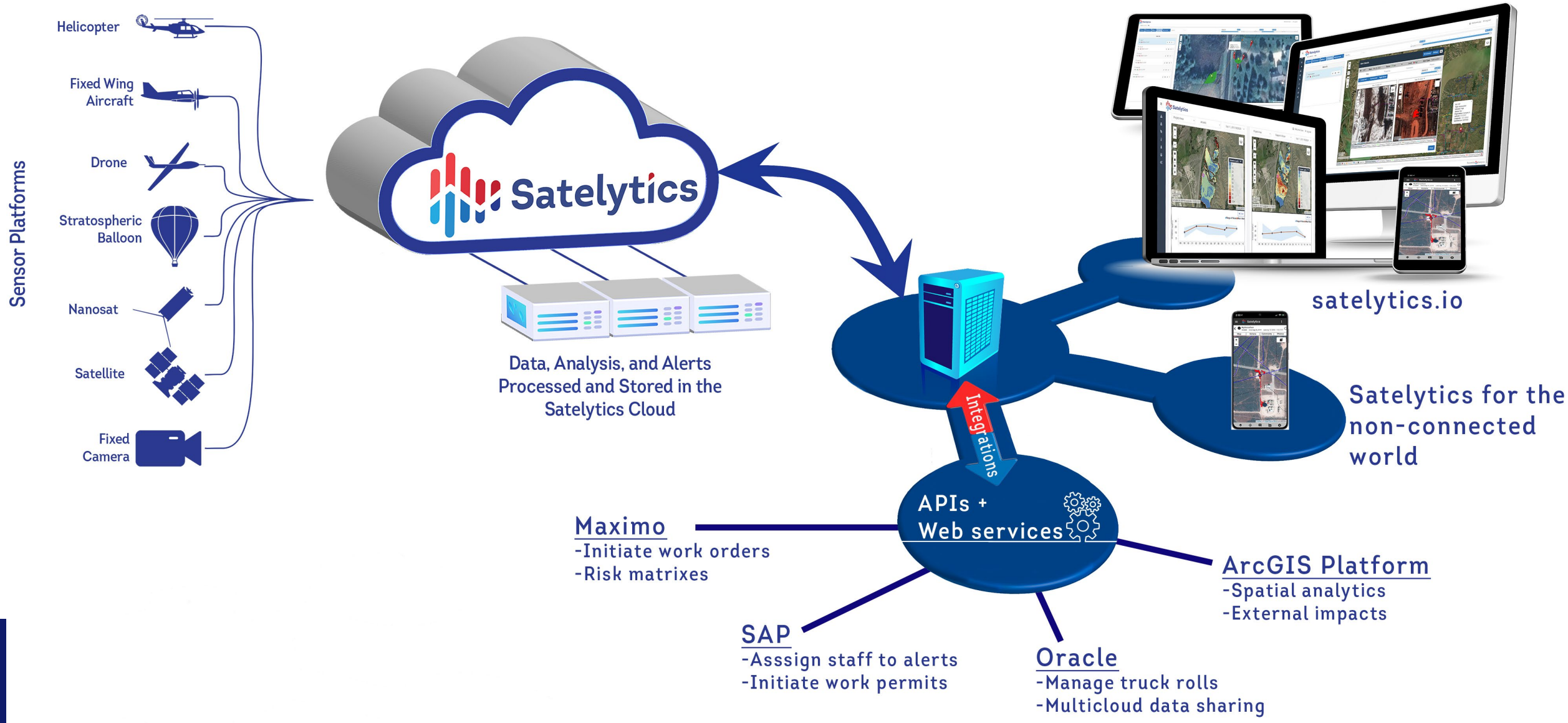
Biological Analysis

- Vegetation Management
- Chlorophyll-a
- Phycocyanin
- Submerged Aquatic Vegetation
- Tree Density
- Tree Height
- Tree Speciation
- Tree Health (growing season)
- Tree Health (life cycle)

Run one or ALL algorithms at the same time….



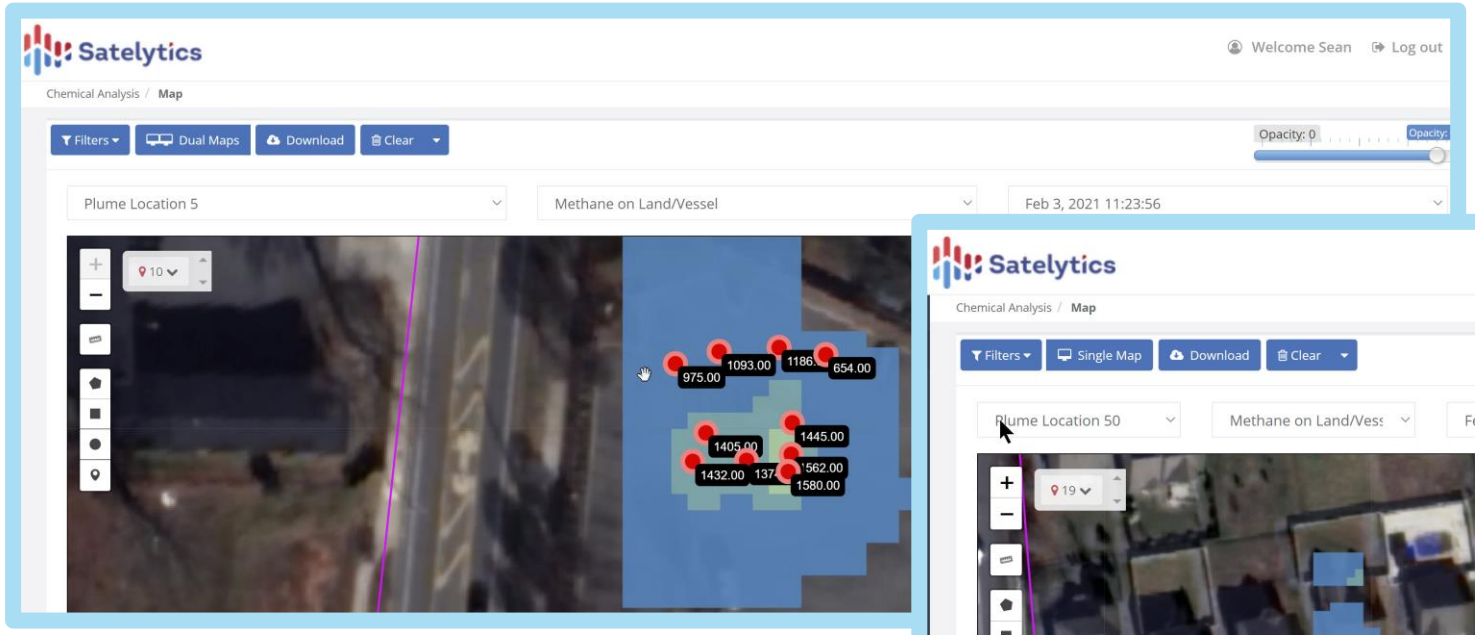
Integration With Other Software Applications on a Number of Platforms

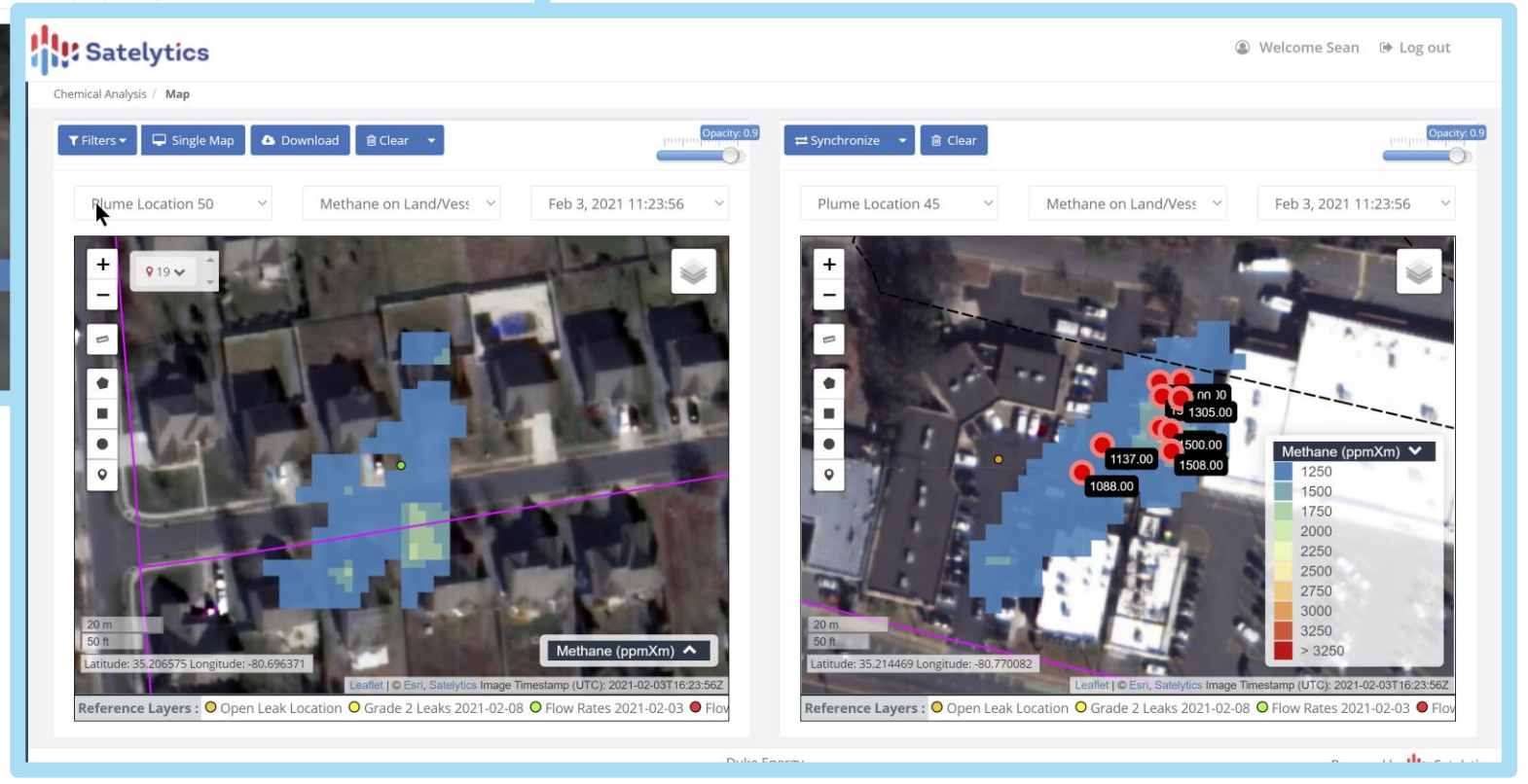


Methane Leak Detection

Gas leak detection during the Aliso Canyon gas leak near Porter Ranch, Los Angeles using satellite data.

Urban domain methane measured in parts per million and flow rates in kg/hour

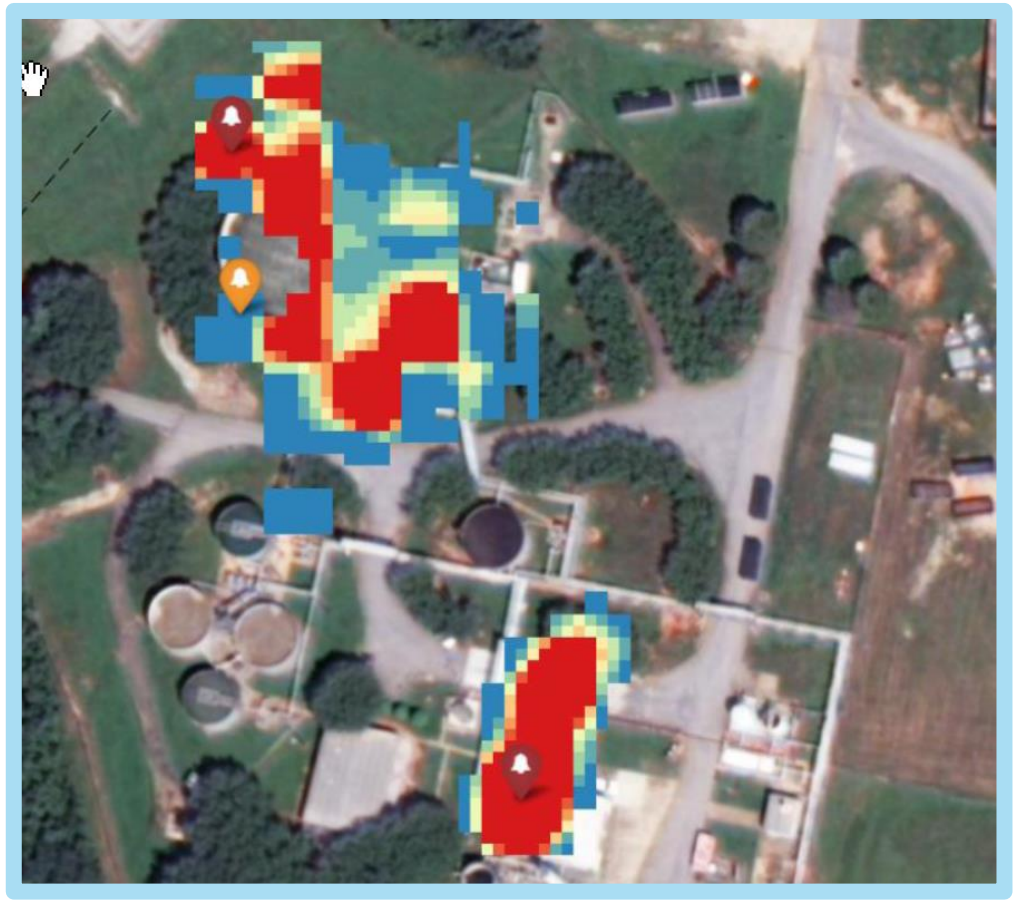




Measuring both plume and flow rates using Satelytics' algorithms

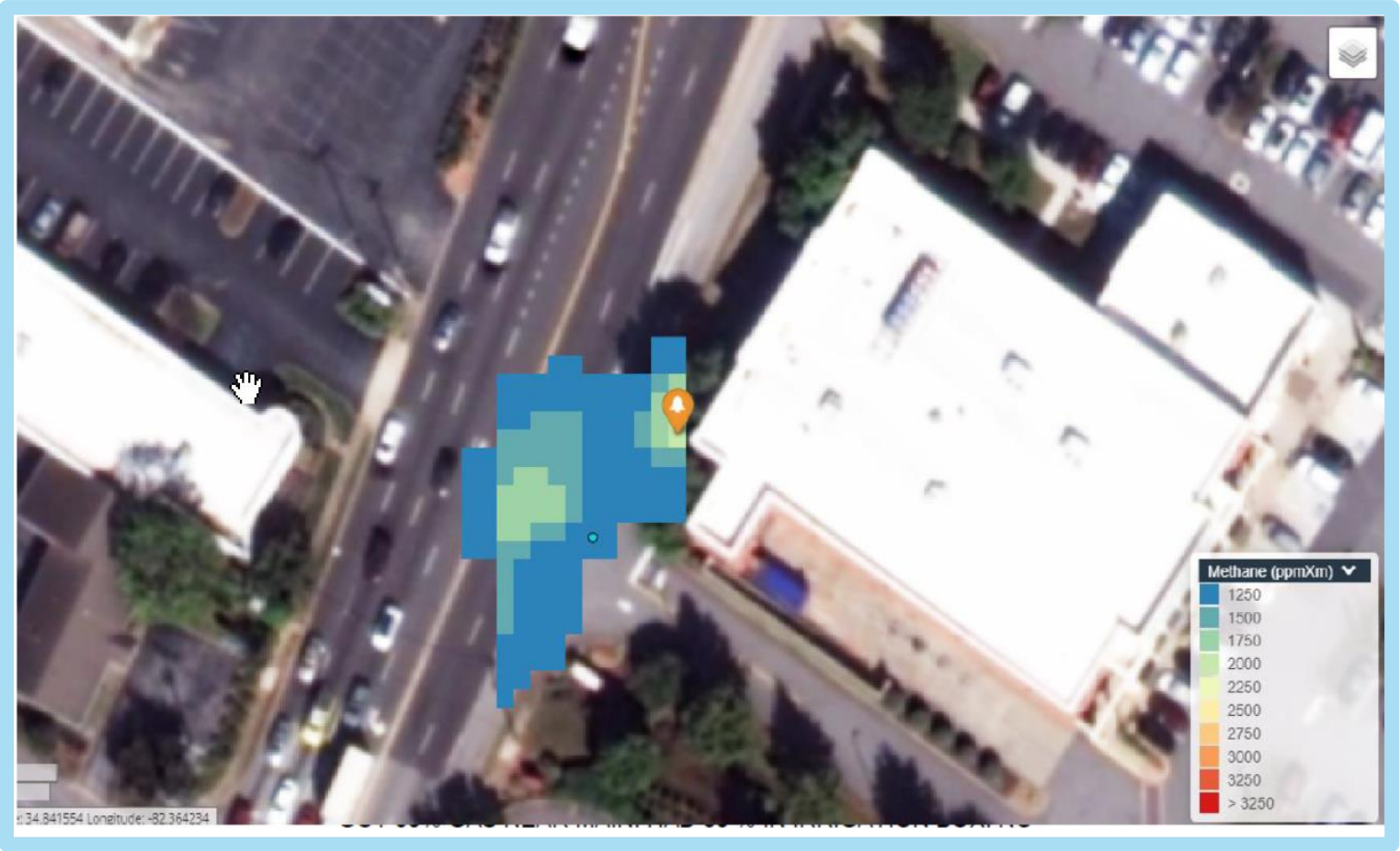
Satelytics.io allows for dual screens to show multi dates or multi locations

Data Stewardship – Addressing Upstream and Downstream Leaks



Leaks were "unknown" to the customer before using Satelytics.io

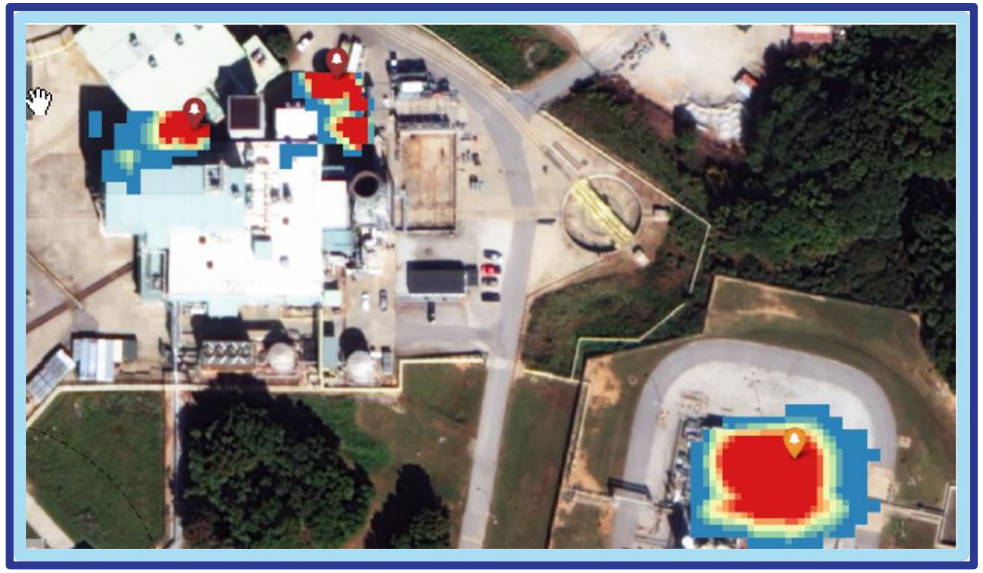
Urban domain methane measured in parts per million and flow rates in kg/hour

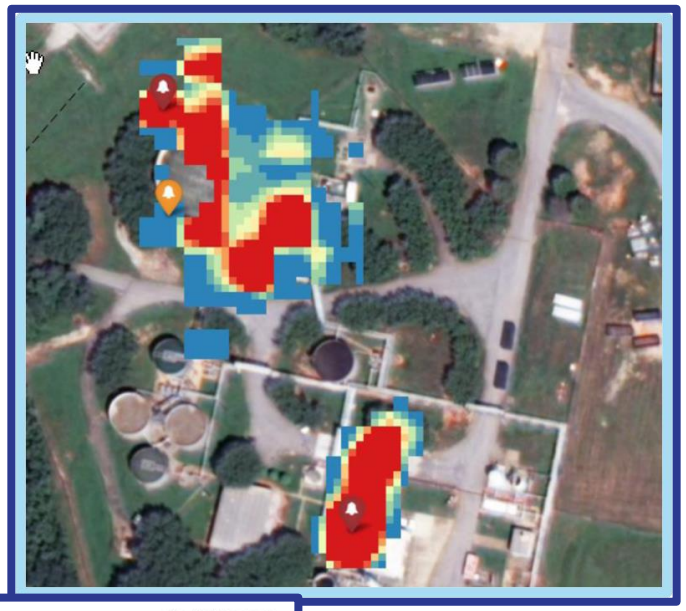


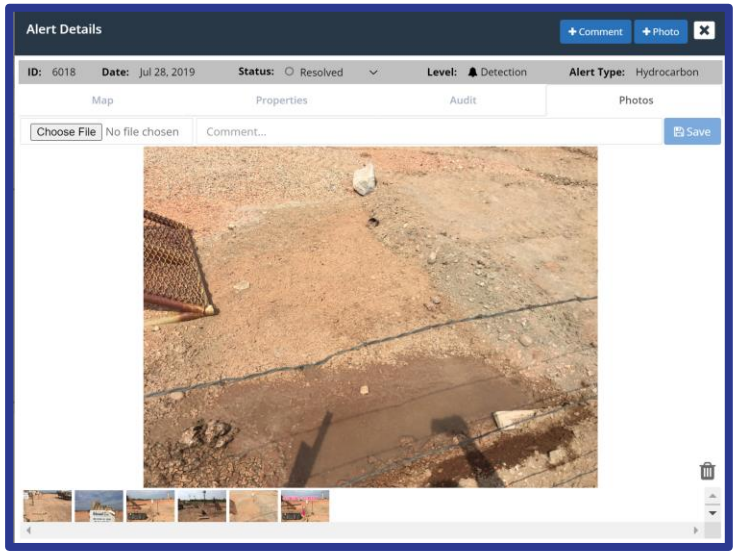
Measuring both plume and flow rates using Satelytics' algorithms – source of leak marked with alert symbols chosen by customer

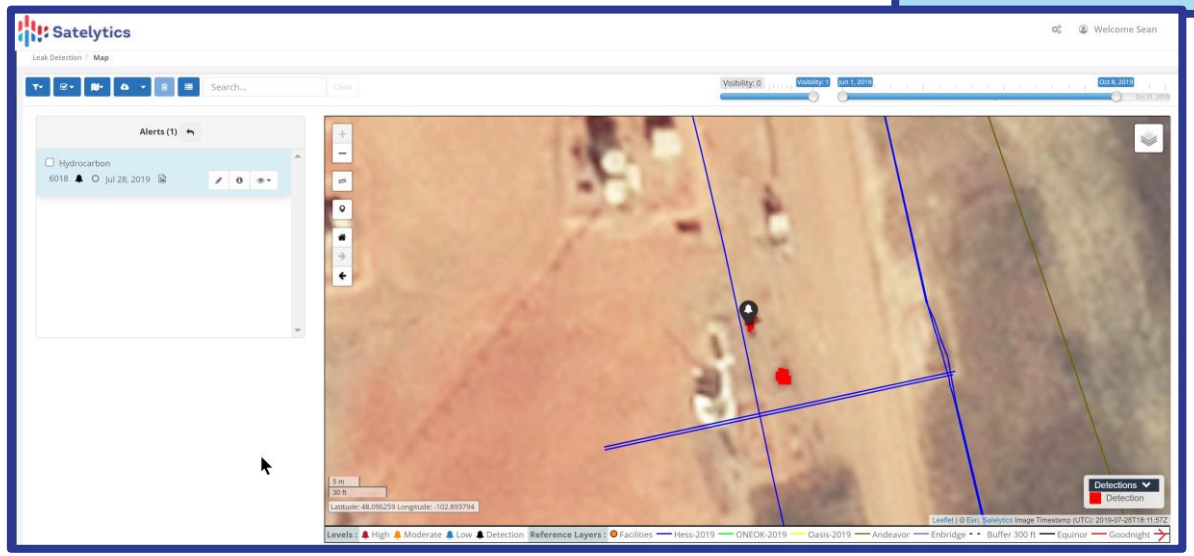
The meter has a small leak 200 ppmXm seen in image to the right below the insulated union

Methane leaks monitoring both plume and flowrate. Could also be liquid leaks.









Current Results – Algorithm Accuracies

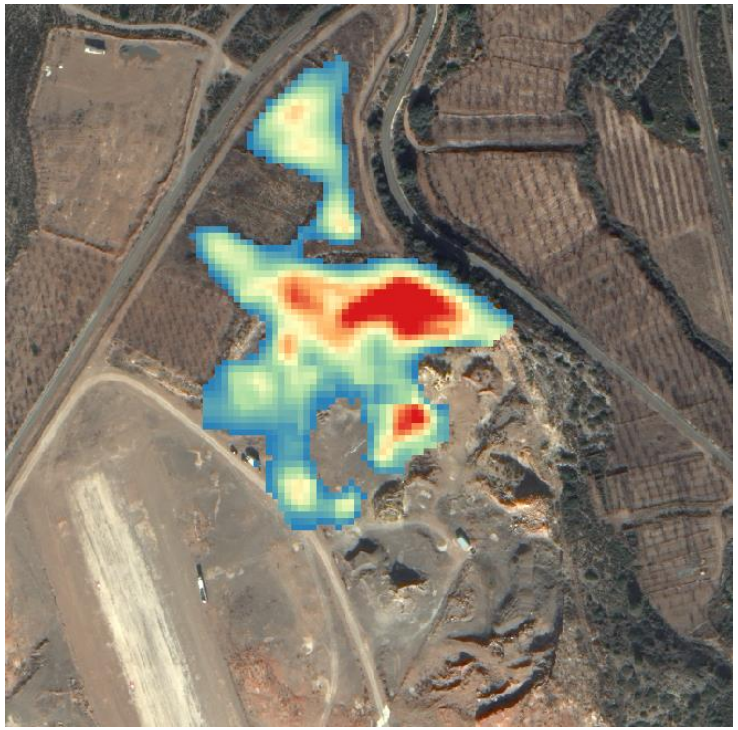
Location (Date)	wind speed (m/s)	Flow Rate (kg/hr)	Actual (kg/hr)	ERROR (%)
METEC (3/4/2020)	1.84	12.39	13.12	5.56
VIVER (12/7/2017)	2.07	59.02	56	-5.39

VIVER Comparison – Original Capture - December 7, 2017

Details Release Rate: 56 kg/hr Wind Speed: ~2.07 m/s Wind Direction: ~198°

First Release

Improving



Today

For more information: see our demonstration at: https://vimeo.com/601148619

Questions, comments, and suggestions please share with…

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