SOLUTIONS FOR
AGRICULTURE

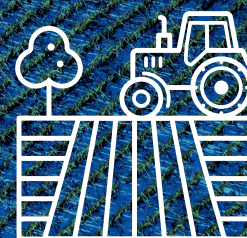**SATELLOGIC**

COMPANY PROFILE

Satellogic specializes in Earth Observation data collection and analytical imagery solutions for agriculture.

- Satellogic **designs, builds and operates its own fleet of Earth Observation satellites** to collect affordable high-resolution imagery with high recurrence for decision-making in a broad range of agricultural applications.
- Specialized in computer vision and big data analytics, Satellogic uses state-of-the-art artificial intelligence (AI) and proprietary algorithms to help agriculture professionals solve problems and meet their goals.

MULTISPECTRAL CAMERA
Sub-meter Resolution

HYPERSPECTRAL CAMERA
25-meter Resolution
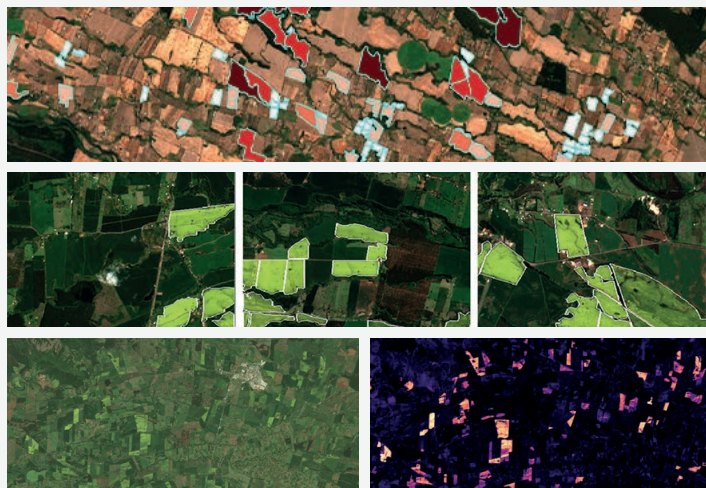
APPLICATIONS FOR AGRICULTURE

CROP SUPPLY CHAIN MANAGEMENT

SOLUTION FEATURES:

- Monitor multiple production fields simultaneously
- Compare providers, optimize operations
- Estimate production levels
- Trace compliance policies
- Change detection

CLIENT BENEFITS:

- Optimize supply chain
- Predict yield
- Assess impact of natural events / disasters
- Gather competitive and market intelligence
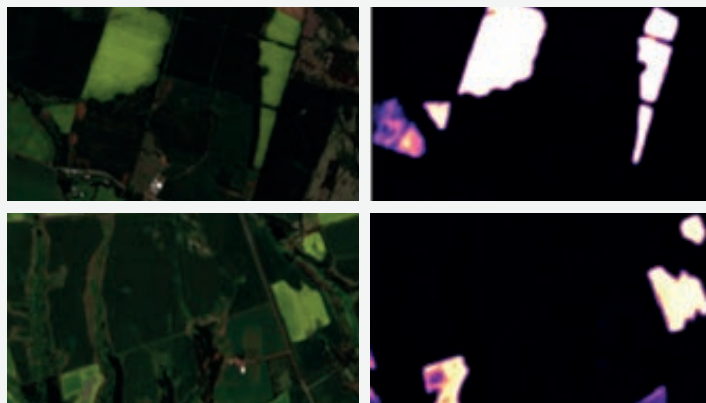

USE CASE: MONITOR COUNTRY-LEVEL PRODUCTION OF RAPESEED.

CROP STAGE ESTIMATION

SOLUTION FEATURES:

- Provides probability map of crops
- Given ground truth, trainable to learn new crop stages
- Generates time series to compare fields, species, weather effect, etc

CLIENT BENEFITS:

- Campaign management
- Species selection
- Dynamic yield prediction

USE CASE: RAPESEED BLOOMING STAGE ESTIMATION.
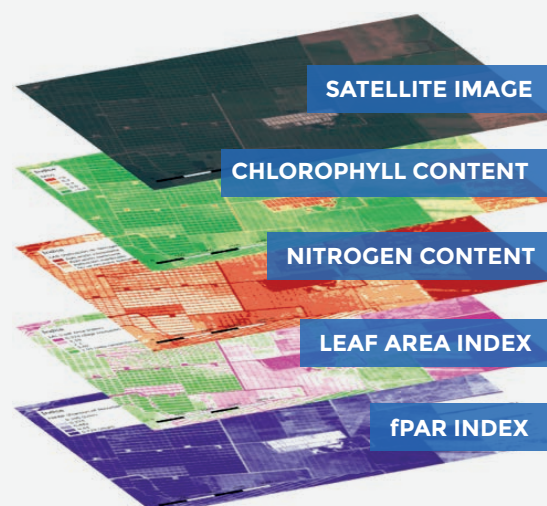
FIELD STATUS MONITORING

PREDICTION OF BIOPHYSICAL VARIABLES

SOLUTION FEATURES:

- Predict biophysical variables and crop health with remote sensing (Leaf area, chlorophyll, nitrogen, canopy water, etc)

CLIENT BENEFITS:

- Improve field inventories activities, like status and performance of crops
- Improve growth models
- Improve fertilization and irrigation scheduling

SATELLITE IMAGE

CHLOROPHYLL CONTENT

NITROGEN CONTENT

LEAF AREA INDEX

fPAR INDEX

USE CASE: MONITORING AND PREDICTION OF BIOPHYSICAL VARIABLES FOR HIGH-VALUE CROPS BASED ON VEGETATION INDICES DERIVED FROM SATELLITE IMAGERY.

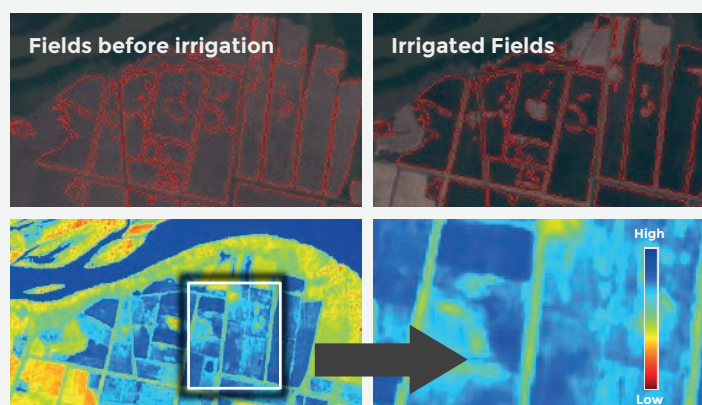## IRRIGATION MONITORING

SOLUTION FEATURES:

- Monitor field irrigation operations
- Assess water level and distribution

CLIENT BENEFITS:

- Cost-effective continuous operational data for timely decision making
- Early detection of irregular irrigation patterns allowing quick countermeasures
- Increase water-use efficiency

Fields before irrigation

Irrigated Fields

High

Low

USE CASE: WIDE-AREA FLOOD IRRIGATION MONITORING OF RICE FIELDS TO IMPROVE TRADITIONAL FIELD MEASUREMENTS, ARGENTINA.
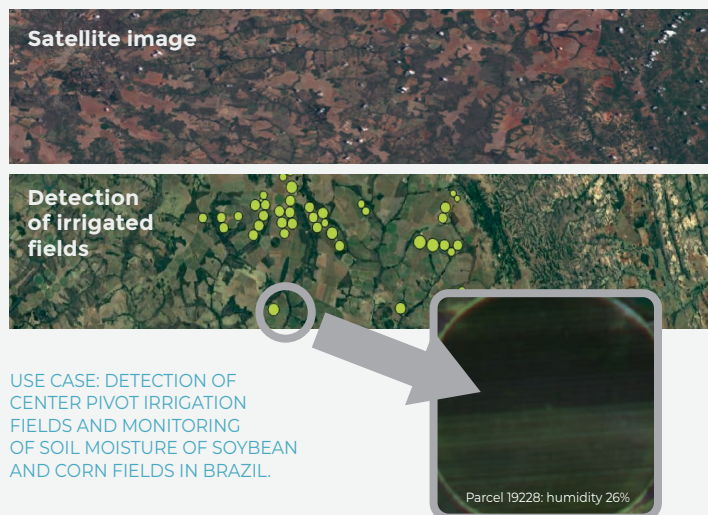
FIELD STATUS MONITORING

SOIL MOISTURE MONITORING

SOLUTION FEATURES:

- Monitor soil moisture level per field

CLIENT BENEFITS:

- Increase crop productivity and lower risk of failed crops by maintaining ideal soil moisture conditions
- Make accurate decisions with timely cost-effective data
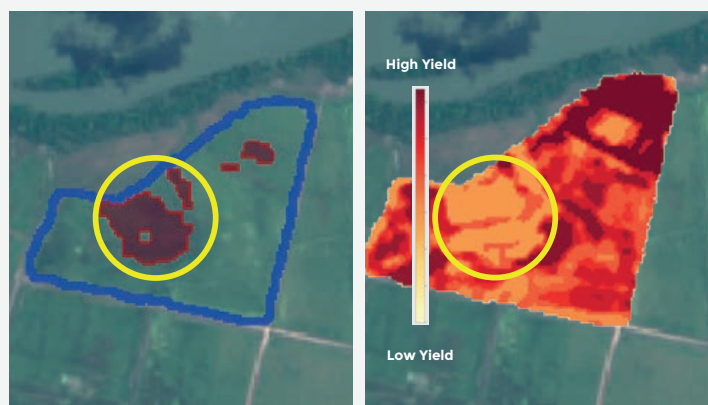- Schedule irrigation for optimal growth

Satellite image

Detection of irrigated fields

Parcel 19228: humidity 26%

USE CASE: DETECTION OF CENTER PIVOT IRRIGATION FIELDS AND MONITORING OF SOIL MOISTURE OF SOYBEAN AND CORN FIELDS IN BRAZIL.

YIELD PREDICTION AND SPATIAL CROP PERFORMANCE

SOLUTION FEATURES:

- Analyze yield prediction
- Monitor spatial variability and detect poor performance areas at an early stage

CLIENT BENEFITS:

- Manage irrigation based on growth stage to maximize yield
- Assess and predict yield at a local and regional scale

High Yield

Low Yield

USE CASE: YIELD PREDICTION AND EARLY MAPPING OF POOR PERFORMANCE AREAS WITHIN FIELDS.
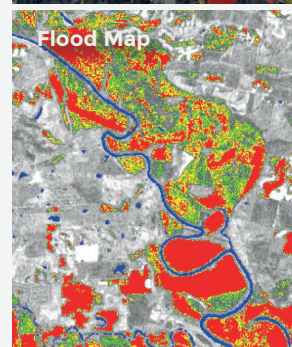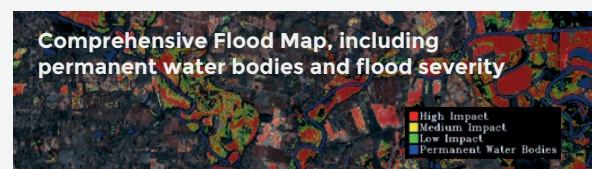
CROP DAMAGE ASSESSMENT

FLOOD MAPPING MONITORING OVER CROPS

SOLUTION FEATURES:

- Accuracy enabled by Optical and Radar Imagery
- Automated identification of water bodies and soil moisture using state-of-the-art artificial intelligence
- Mapping of flood extent and impact (depth and duration of standing water)

CLIENT BENEFITS:

- Verification of insurance claims
- Timely accurate assessment of flood extent and damage
- Risk model updates
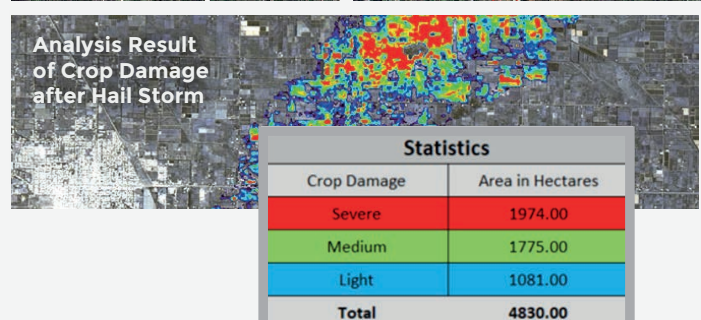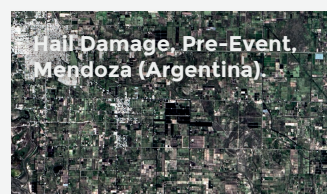- Low-cost market intelligence at your fingertip

Comprehensive Flood Map, including permanent water bodies and flood severity

High Impact
Medium Impact
Low Impact
Permanent Water Bodies

Flood Map

Multispectral Image after Flooding

HAIL DAMAGE ASSESSMENT

SOLUTION FEATURES:

- Detection and monitoring of crop damage
- Damage estimate per parcel
- Automated and scalable approach

CLIENT BENEFITS:

- Before and after assessment of fields
- Highly accurate results
- Customizable online reports, including damage, area size, severity, field status before event, like crop type, growth stage (optional)

Hail Damage, Pre-Event, Mendoza (Argentina).

Hail Damage, Post-Event, Mendoza (Argentina).

Path of Hail Storm

Analysis Result of Crop Damage after Hail Storm

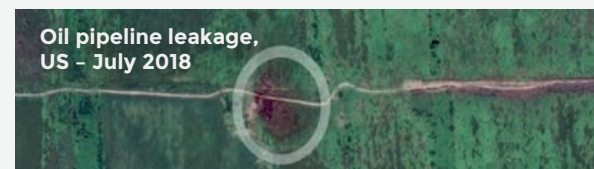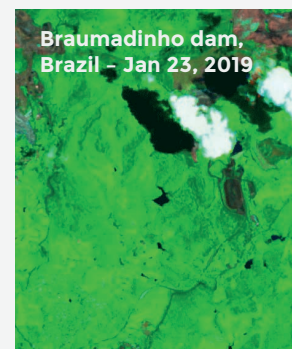| Statistics	
Crop Damage	Area in Hectares
Severe	1974.00
Medium	1775.00
Light	1081.00
Total	**4830.00**

CROP DAMAGE ASSESSMENT

RAPID EVENT RESPONSE TO DAMAGING THREATS

SOLUTION FEATURES:

- Assessment of damage extent (area size, severity, description of affected area)
- Risk assessment of the affected and surrounding areas
- Mapping of natural disasters: flooding, landslides, etc

CLIENT BENEFITS:

- Global response - even in remote areas
- Historic catalog of pre/post event
- Access to suitability analysis of areas prone to natural disasters
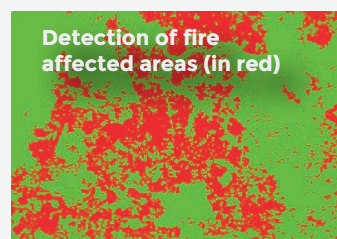- Latency reduction between information and action

Braumadinho dam, Brazil – Jan 23, 2019

Braumadinho dam rupture, Brazil – Jan 25, 2019

Oil pipeline leakage, US – July 2018

WILDFIRE IMPACT ASSESSMENT

SOLUTION FEATURES:

- Detect and map the area affected by all wildfires within days
- Monitor the recovery level of timber after the wildfires

CLIENT BENEFITS:

- Cost-effective data for detailed decision making with fast turnaround time
- Assess impact and damage caused by the wildfire

Pre-wildfire Imagery

Post-wildfire imagery

Detection of fire affected areas (in red)

Map of forest recovery level

USE CASE: ANALYSIS OF DEVASTATING JANUARY 2017 WILDFIRE THAT BURNED CROSS CHILE AND CAUSED SUBSTANTIAL ECONOMIC DAMAGE

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