

EUROPEAN SPACE IMAGING

European Preferred Gateway for VHR Imagery
and Agriculture Monitoring Solutions

Ossi Karjalainen, Senior Sales Manager



AEUSI



EUROPE'S LEADER IN

IMAGERY SOLUTIONS

- Maxar's EU counterpart. Trusted source for high quality data and expertise since 2002
- Customer base covers more than 1700 customers in 59 countries in Europe and North Africa. Each year we process 3500-4500 orders.
- Extensive network of innovative partners and regional distributors
- Dedicated multi-mission ground station at the German Aerospace Center (DLR)

REDUCING

THE LATENCY

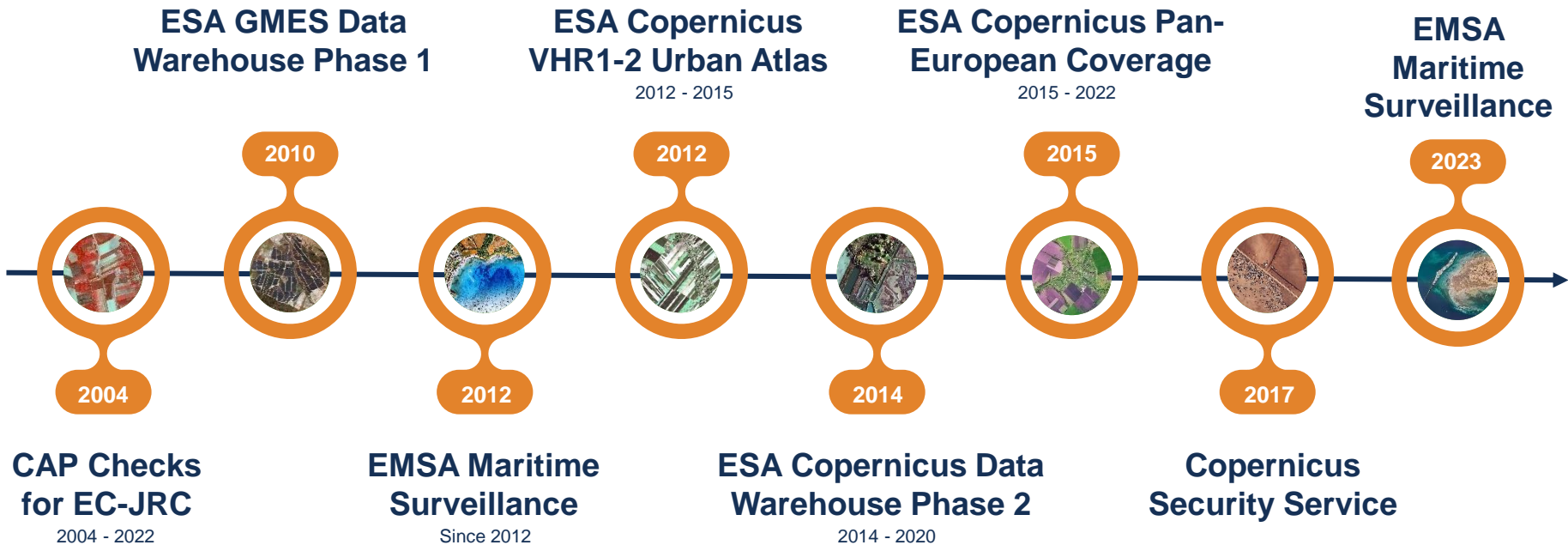
Near Real Time Orders: Continuing our success story:

- Further reducing the latency to less than **20 minutes**
- Scaling up the quantity of time critical orders

New DAF 3.0: Scalable System to allow performance scale up if needed



PROJECT MILESTONES



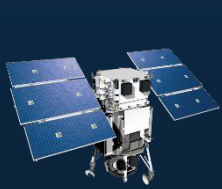
COUNTRY COVERAGES

TASKING VHR CAPABILITIES

Worldview Global Alliance Sensor Overview:

Legacy : WorldView-1, WorldView-2, WorldView-3, Geoeye-1

Future : Legion-1, Legion-2, Legion-3, Legion-4, Legion-5, Legion-6



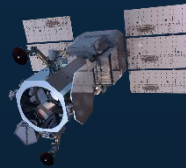
WorldView-1
PAN, 50cm



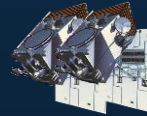
WorldView-2
8 Bands, 46cm



GeoEye,
4 Bands, 41cm

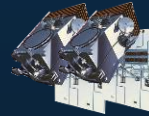


WorldView-3,
16 Bands, 30cm



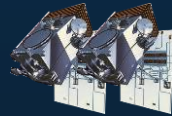
Legion 1&2,
8 Bands, 30cm

Launch Q2 2023



Legion 3&4,
8 Bands, 30cm

Launch Q3 2023



Legion 5&6,
8 Bands, 30cm

Launch early 2024

LEGACY SATELLITES

FUTURE SATELLITES

15 cm HIGH DEFINITION



VISUAL CLARITY

easier to interpret images, allowing you to find critical features faster



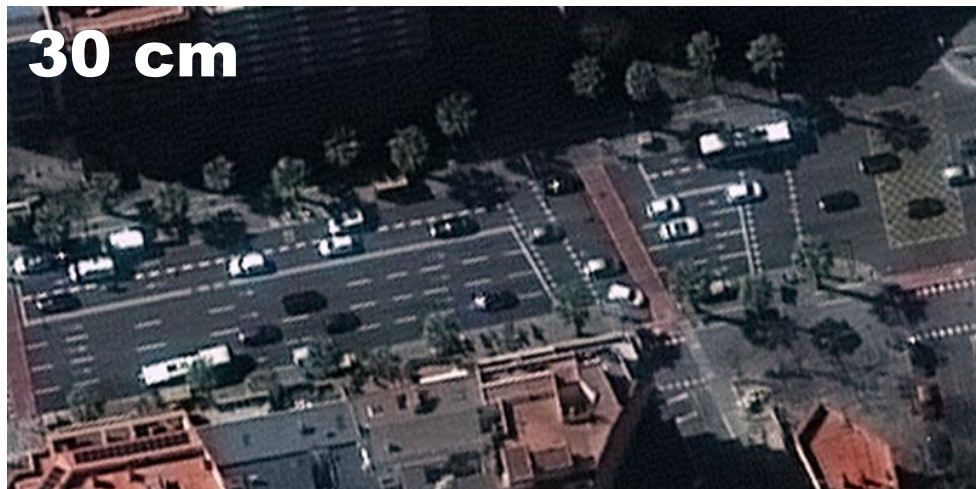
ACCURATE FEATURE IDENTIFICATION

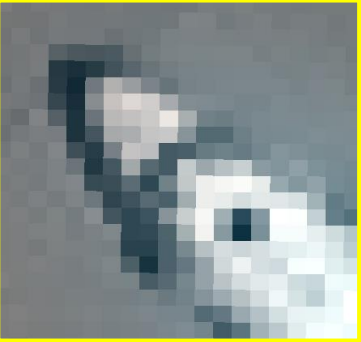
have the level of detail available to accurately identify features



RAPID DECISION MAKING

faster interpretation driving rapid confident mission decisions





An-26 CURL



30cm



15cm

AGRICULTURE & FORESTRY APPLICATIONS





AMERSFOORT



FOR AGRICULTURE & FORESTRY



Land Use & Land Cover

Large-scale monitoring of land to review change detection over time for both urban and rural areas. Assist planning, decision making and management to ensure sustainable development



Food Security

Ability to measure agriculture productivity at both smallholder and large scale farming. Rapid revisit allows analysis of soil fertility and the optimisation of drenching methods to maximise crop yield



Forest Management

Determine the health of forests, differentiate between tree species, detect illegal logging, create canopy height models, calculate carbon stocks and estimate loss after natural disasters







PROPERTY BOUNDARIES

10 m Resolution



PROPERTY BOUNDARIES

30 cm Resolution



PROPERTY BOUNDARIES

30 cm Resolution

2.02 ha

An aerial photograph of a farm complex. A central green field is outlined with a thick orange border, with the text '2.02 ha' centered within it. To the left of this field is a cluster of buildings, including a large barn and several smaller structures, with a paved area and parking spaces. To the right of the orange-outlined field is a large, rectangular field covered in a grey, textured material, possibly a cover crop or mulch. Further to the right, there are several rows of colorful, rectangular plots, likely for growing vegetables or flowers, in shades of red, orange, yellow, and green. The background shows more agricultural fields, some with distinct rows of crops, and a road or path running through the area.

PROPERTY BOUNDARIES

30 cm Resolution

2.02 ha 1.65 ha

22.4% ERROR



PLANT HEALTH

10 M Resolution (NIR1 – RED – GREEN)



PLANT HEALTH

30 cm Resolution (NIR1 – RED – GREEN)



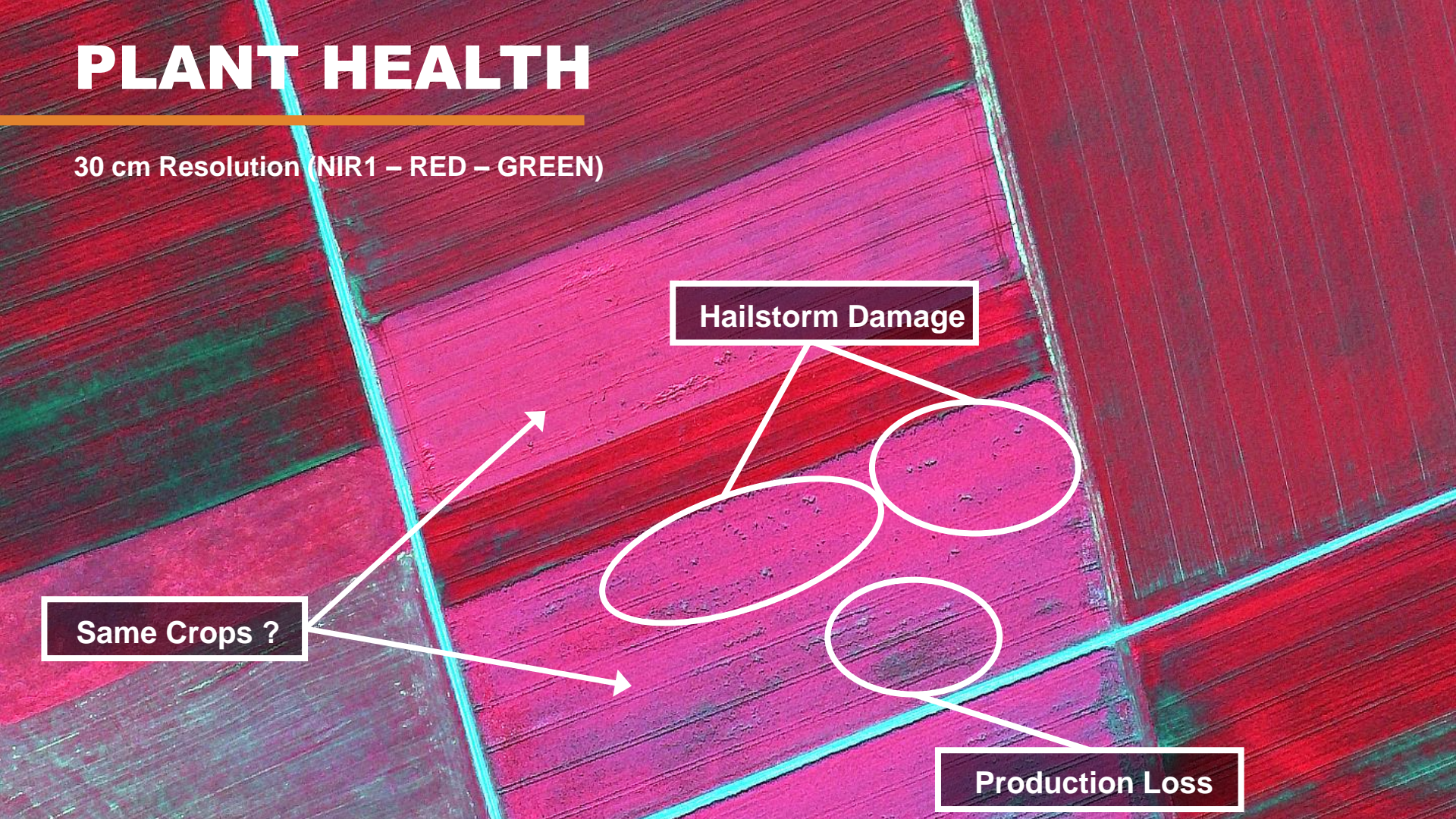
PLANT HEALTH

30 cm Resolution (NIR1 – RED – GREEN)

Hailstorm Damage

Same Crops ?

Production Loss



PLANT HEALTH

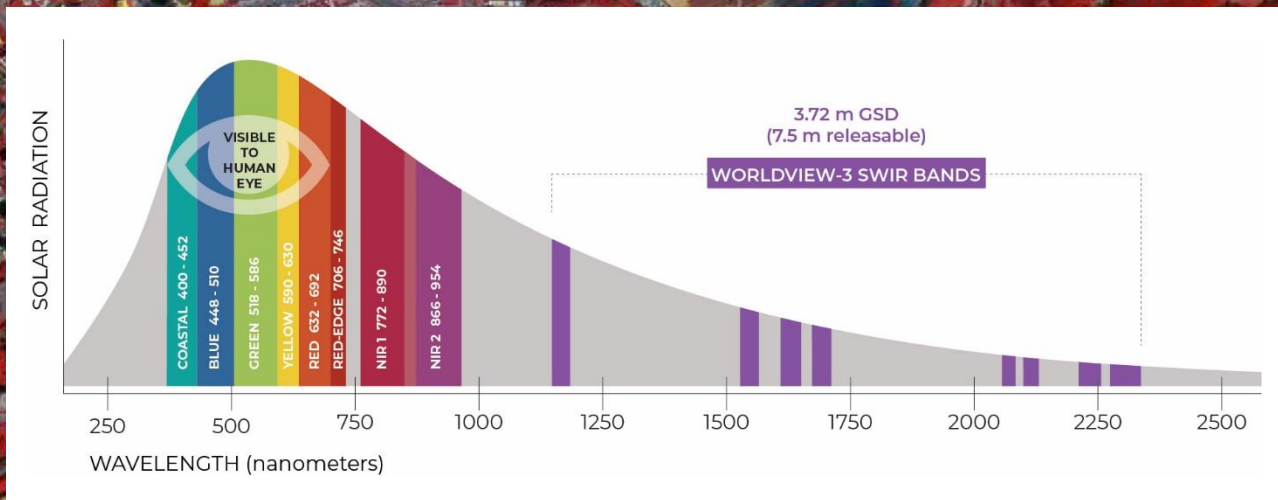


30 cm Resolution (NIR2 – YELLOW - COASTAL)

Different Shades
of Red, indicates:

- Different Crop Species
- Different Growth Stage
- Different Stress Factors

16 SPECTRAL BANDS



YELLOW | 590 – 630 NM

- Very important for feature classification
- Detects the "yellowness" of particular vegetation, both on land and in the water



NIR2 – Yellow – Blue
Roof Material Identification

Applications Include:

- Leaf Colouration
- Plant Stress
- CO₂ concentration
- Material identification
- Algal blooms
- Sea grass and reefs
- Separation of iron formations
- "True colour"
- Plant species identification

RED EDGE | 706 – 746 NM

- Centered strategically at the onset of the high reflectivity portion of vegetation response
- Very valuable in measuring plant health and aiding in the classification of vegetation



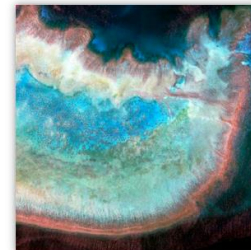
NIR1 – Red Edge – Red
Camouflage Detection

Applications Include:

- Vegetation health
- Vegetation stress
- Vegetation type
- Vegetation age
- Sea grass and reefs
- Land / no land analysis
- Impervious surfaces
- Turbidity
- Camouflage

GREEN | 518 – 586 NM

- Able to focus more precisely on the peak reflectance of healthy vegetation
- Ideal for calculating plant vigor
- Very helpful in discriminating between types of plant material when used in conjunction with the Yellow band



Coastal – Blue – Green
Reef Water Depth

Applications Include:

- Crop types
- Sea grass and reefs
- Bathymetry

SHORT-WAVE INFRARED | 1184 – 2373 NM

- Focuses deeper into the infrared spectrum
- Able to detect heat
- Detection of materials containing anion groups such as Al-OH, Mg-OH, Fe-OH, Si-OH, carbonates, ammonium, and sulfates

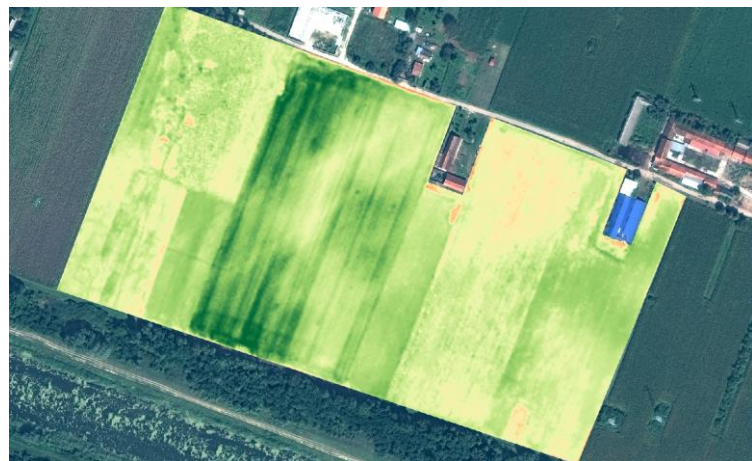
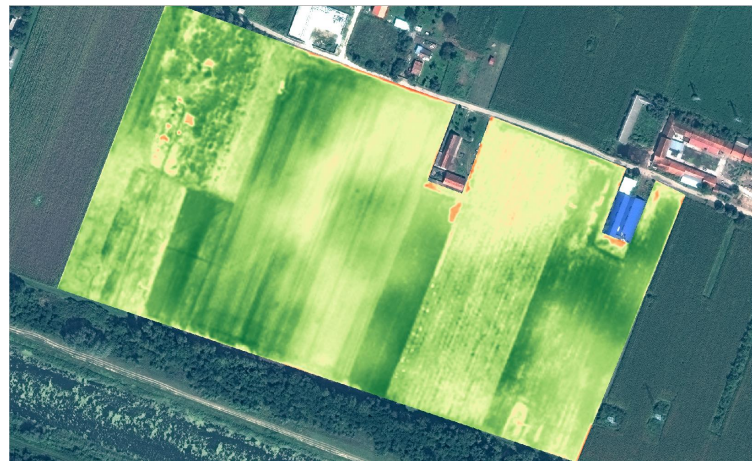


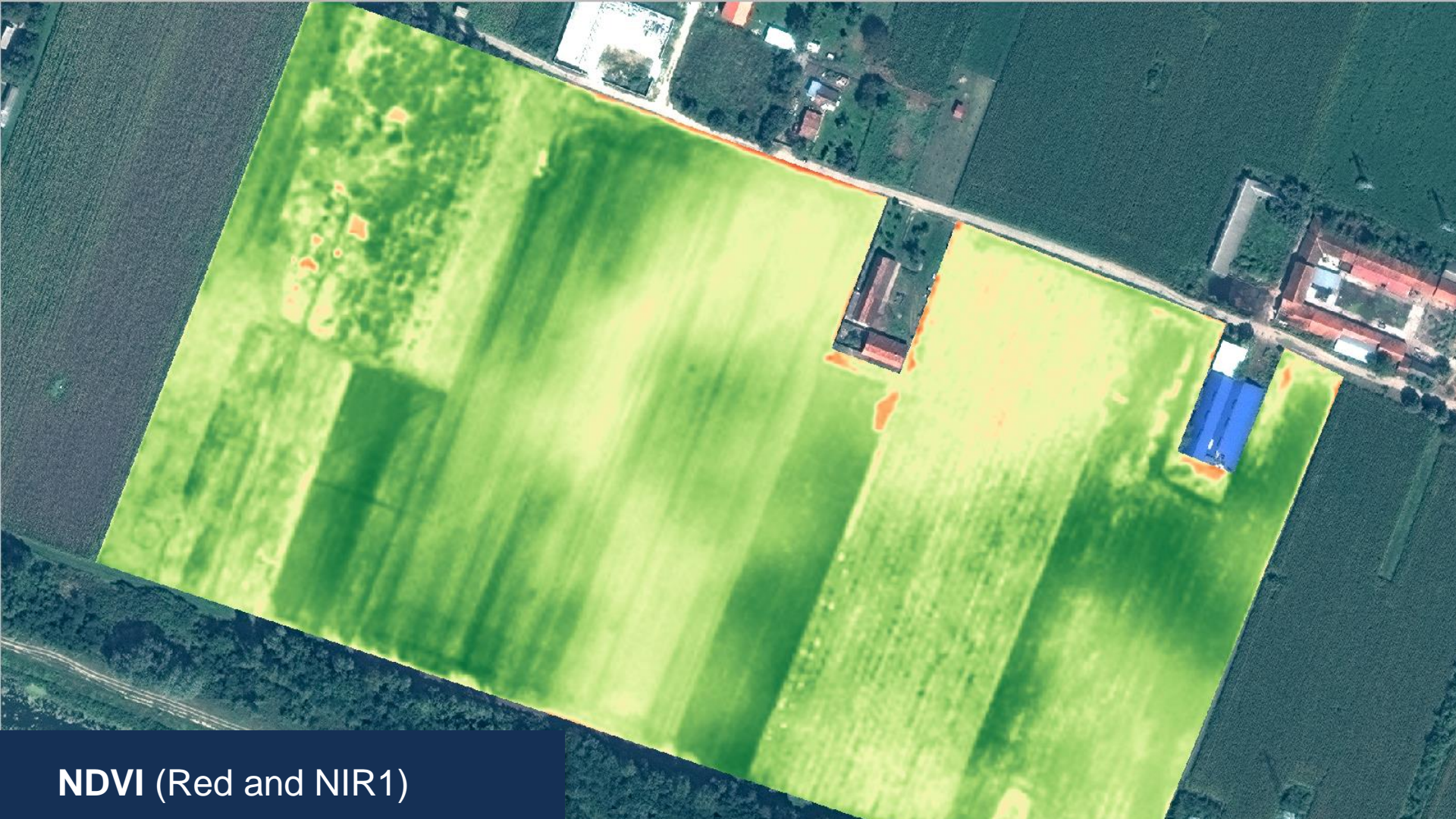
S3 – S6 – S8
Clay Mineral Alteration

Applications Include:

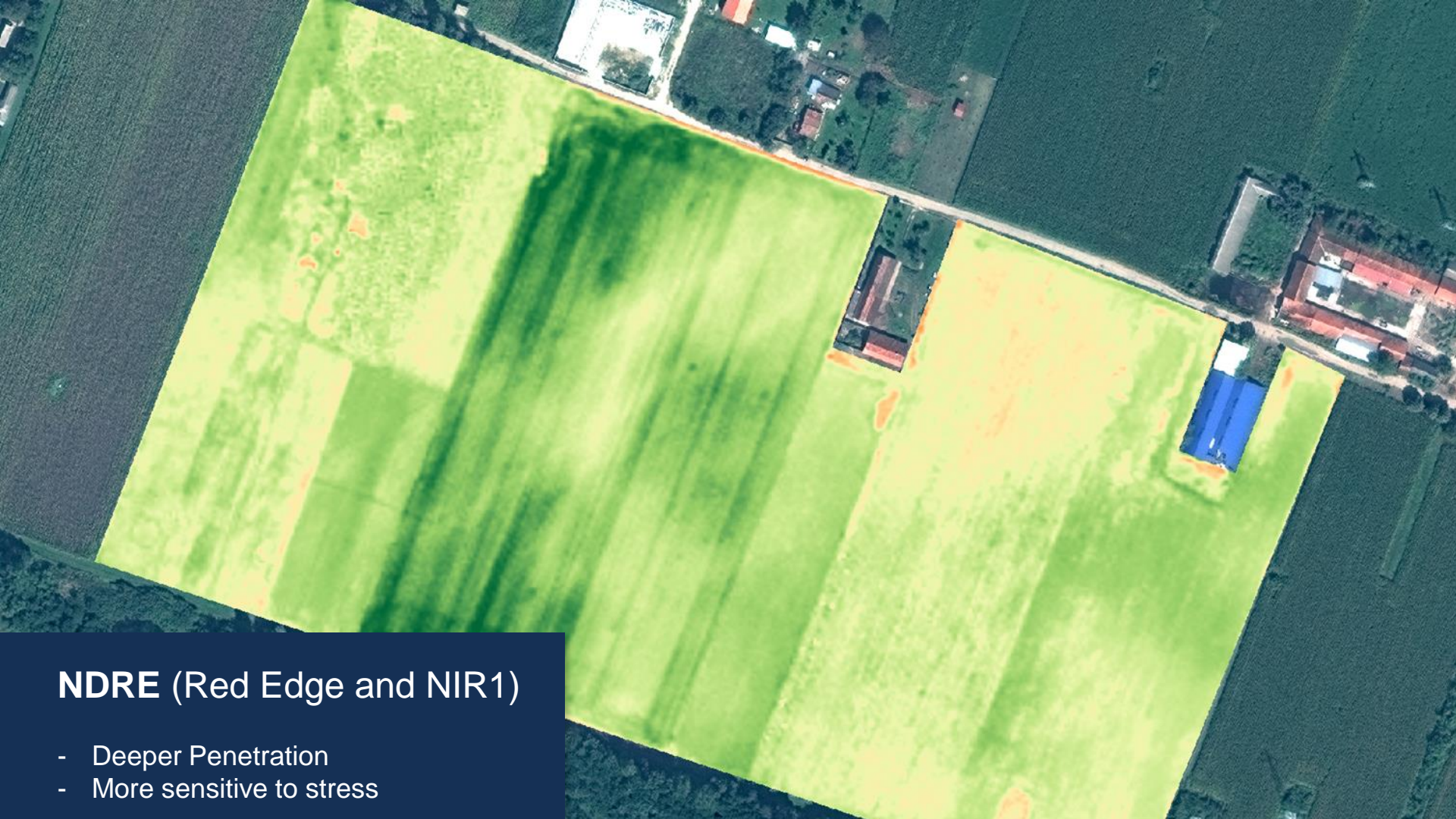
- Fire / Volcanic eruption response
- Material identification
- Soil moisture
- Mineral content

NDVI vs NDRE





NDVI (Red and NIR1)



NDRE (Red Edge and NIR1)

- Deeper Penetration
- More sensitive to stress

NDRE



NDVI



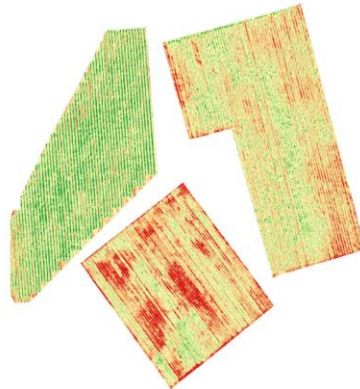
OPTIMISING WINE

CASE STUDY

IN PARTNERSHIP WITH TOTALVIEW

30 indices were calculated by using 8 Band VHR data: NDVI, MDWI, LAI, OSAVI, MCARI2, etc.

- Vine spectral signatures computed from **WorldView 8 Band data** show high correlations with spectral signatures from ground radiance and reflectance data
- LAI and IMAD maps can be crucial components of the decision making process regarding both the **crop management and selective harvesting**



FORESTRY MANAGEMENT

30 cm Resolution



FORESTRY MANAGEMENT

30 cm Resolution



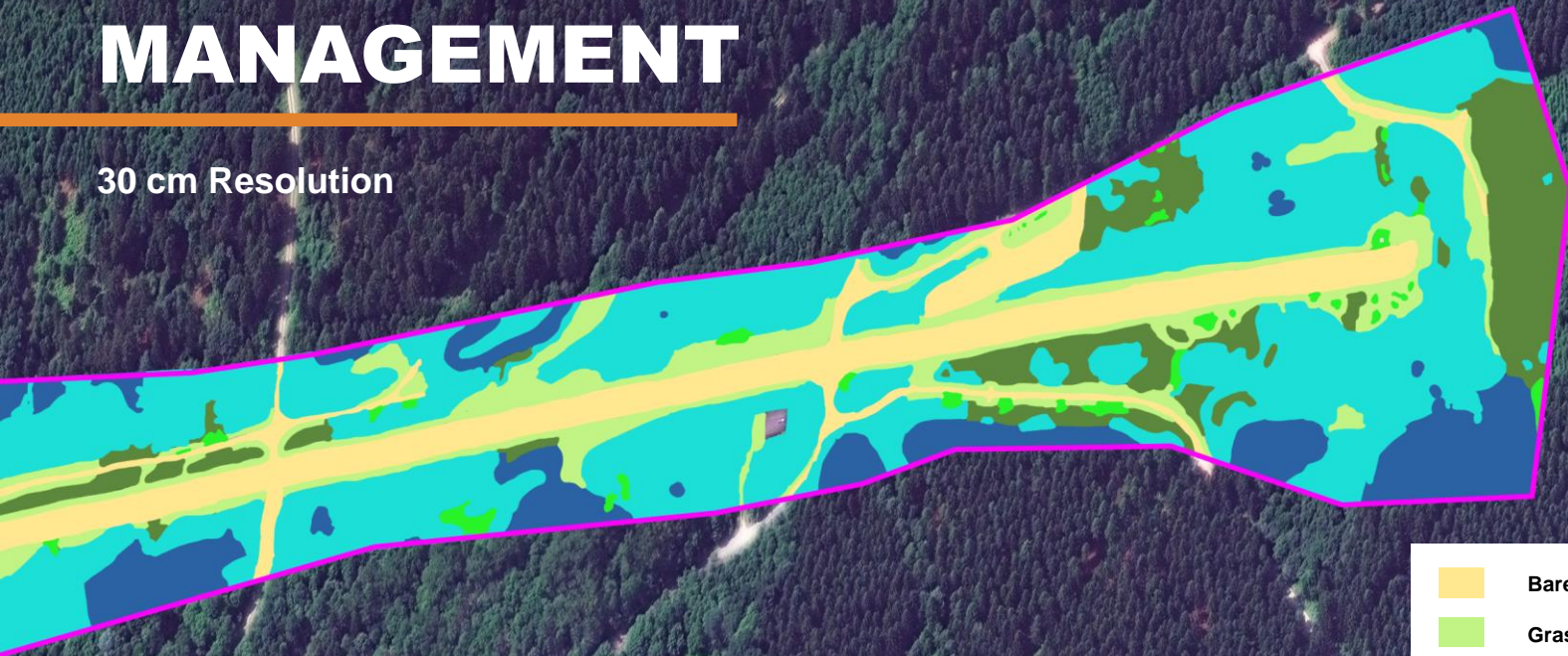
FORESTRY MANAGEMENT







30 cm Resolution

The image displays a dense forest captured in a 3D point cloud format, where each point is colored by its height. The terrain is highly textured, showing individual tree crowns and the forest floor. A prominent road or path runs vertically through the center of the forest, appearing as a darker, more uniform vertical strip. The overall color palette is dominated by various shades of green and brown, representing the vegetation and ground. The resolution is noted as 30 cm, indicating a high level of detail in the data.

FORESTRY MANAGEMENT

30 cm Resolution



-  Bare Soil
-  Grass/Weeds
-  Low Density Shrubs
-  High Density Shrubs
-  Low Density Trees
-  High Density Trees

MIDDLE BLACK SEA REGION, TURKEY

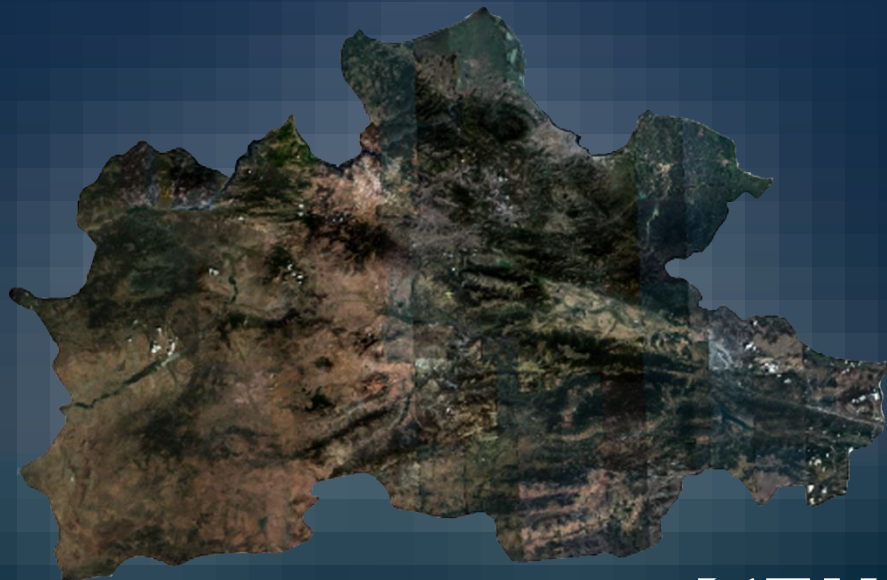
CASE STUDY

IN PARTNERSHIP WITH NIK SYSTEMS

Much of the region remains **notoriously cloudy** through most of the year. This means, in order to complete the task within one calendar year, over **40,000km of cloud free** data must be collected within a period of **only a few weeks**.

European Space Imaging delivered the entire area in just over **7 weeks**.

- + 40,000 sq. km
- < 2% Cloud Coverage
- 50cm Resolution
- 140 Image Strips
- 2.6 TB Total Data



MAXAR

IMAGERY BASEMAPS

Maxar's Vivid and Dynamic imagery basemaps feature the latest innovations in mosaicking, color balancing and image processing to provide stunning high-resolution, high-accuracy image layers available off the shelf or configured on demand.

Imagery basemaps provide a virtually seamless, consistent image layer over large areas to support mapping, visualisation, and analytics. Spend less time processing data and more time executing your mission.



COST EFFICIENT

Pay only for your AOI at a competitive price point to suit all budgets



CONTINUAL UPDATES

Annual basemap layers offer refreshed imagery with year-over-year consistency



FLEXIBLE INTEGRATION

Flexible access options for a solution that integrates seamlessly into any workflow

MAXAR IMAGERY BASEMAPS

VIVID

- Suite of off-the-shelf imagery basemaps with up to 15 cm resolution and 5 m CE90 spatial accuracy
- Vivid products are produced annually with the most current, clear imagery available
- Ideal for visualisation, large area feature extraction, and providing context in maps and applications



OUR FUTURE

INNOVATIONS

- Increased coverage over high demand areas
- Increased NRT delivery for faster business decisions
- Tripled 30 cm class capacity

