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Artificial Intelligence and Deep Learning for advanced Earth Observation products and services

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AGRICULTURAL MAPPING

Delivering timely agricultural monitoring and mapping at scale through advanced Deep Learning and Earth Observation

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CHALLENGE

Where traditional agricultural mapping meets its limits

Accurate, up-to-date information on agricultural landscapes and field locations is unavailable in most parts of the world. Routinely updated maps are very costly and require a lot of manual labor.

Mapping of fast changes, e.g. due to catastrophes, migration or conflict, is often impossible.

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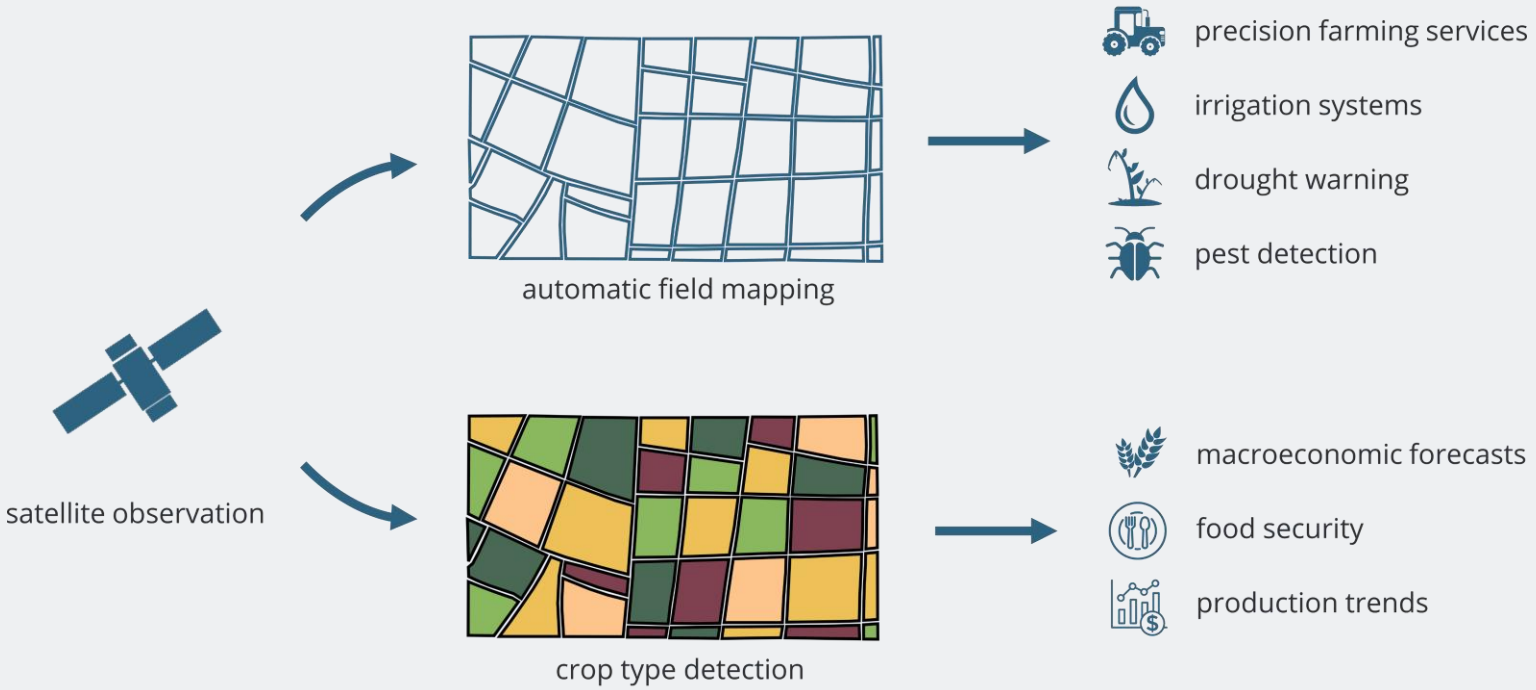

SOLUTION

Alleviating existing limitations

Field mapping through advanced Deep Learning techniques and Earth Observation data allows producing regularly updated maps or even near-real time observations.

Automatized processing on regional to global scales enables fast delivery of insights for time-sensitive applications.

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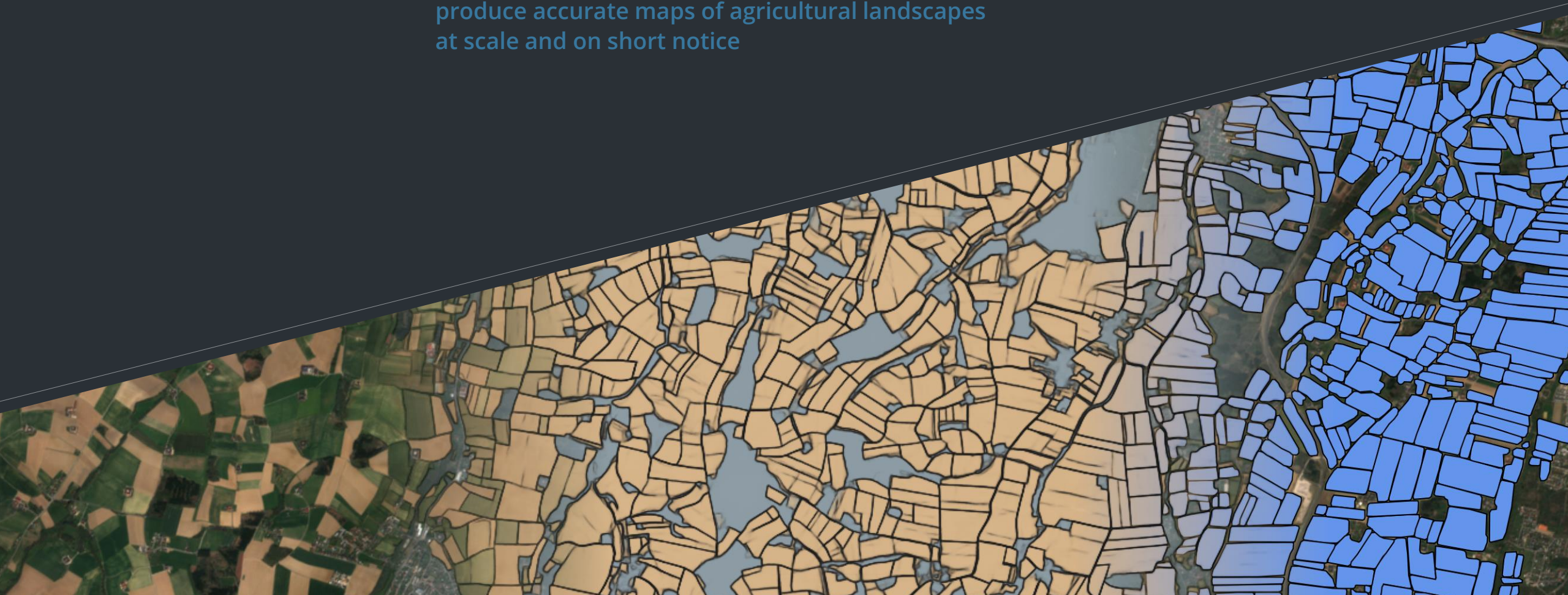
OUR PRODUCTS

Leveraging advanced AI and high-resolution Earth Observation data to produce accurate maps of agricultural landscapes at scale and on short notice



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FIELD MAPS

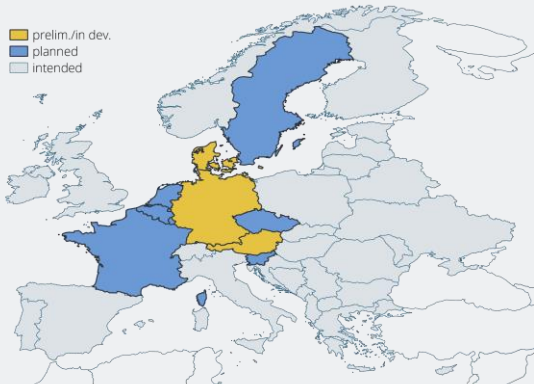
Extracting fields from imagery

We approach agricultural monitoring bottom-up by producing the most fundamental data first: accurate field maps.

Rather than just classifying agricultural areas, we produce geolocated vector maps representing individual fields as precise polygons.

Ground truth

Extracted fields



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CROP TYPE MAPS

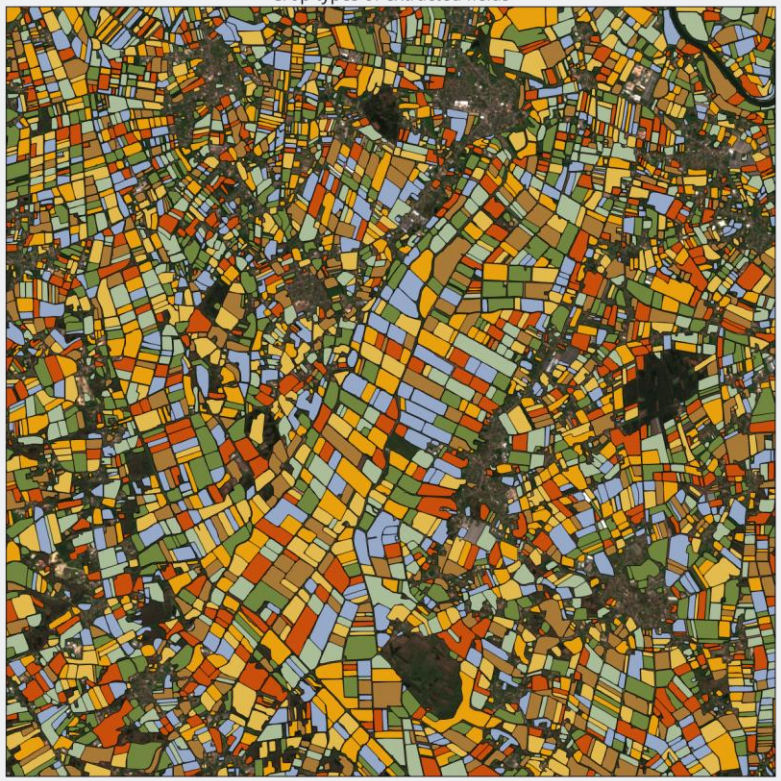
Distinguishing what is grown

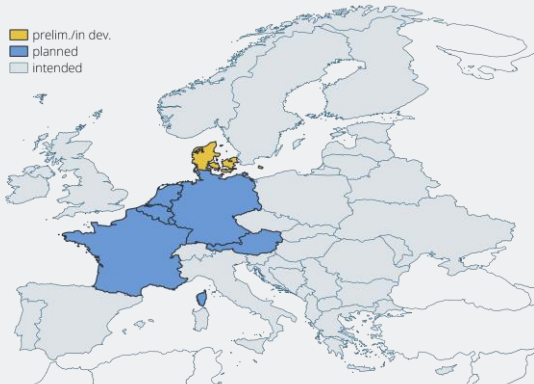
Instead of a fragile pixel-by-pixel prediction, we detect crop types more reliably on field level.

Leveraging our extracted field maps, we can provide crop type detection at scale, even in remote regions of the world.

Sentinel-2

Crop types of extracted fields





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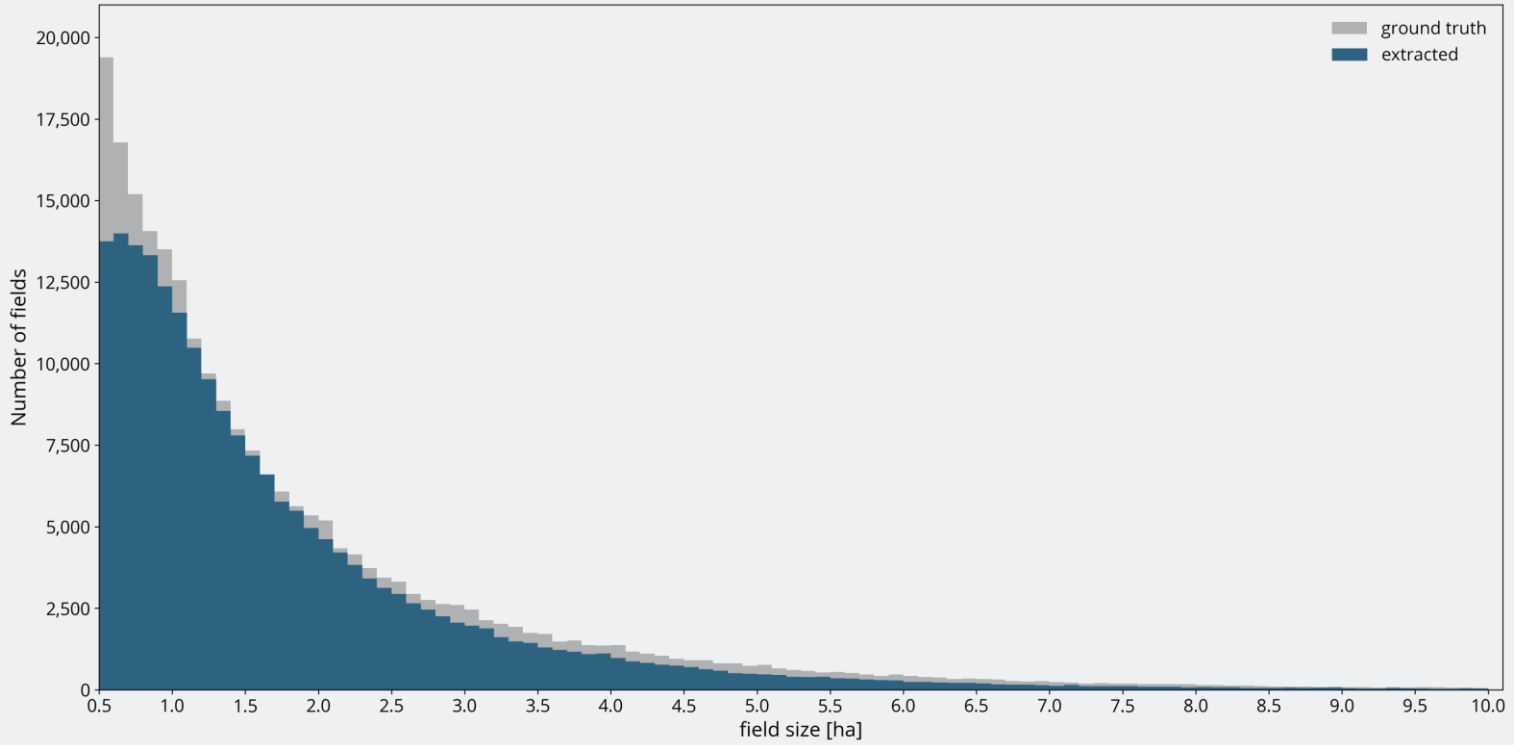
STATISTICS

Aggregating information on different regional scales

Information extract in detail on a per field basis can easily be aggregated to different regional or administrative scales.

This can enable observing trends on a large spatial scale or over time.



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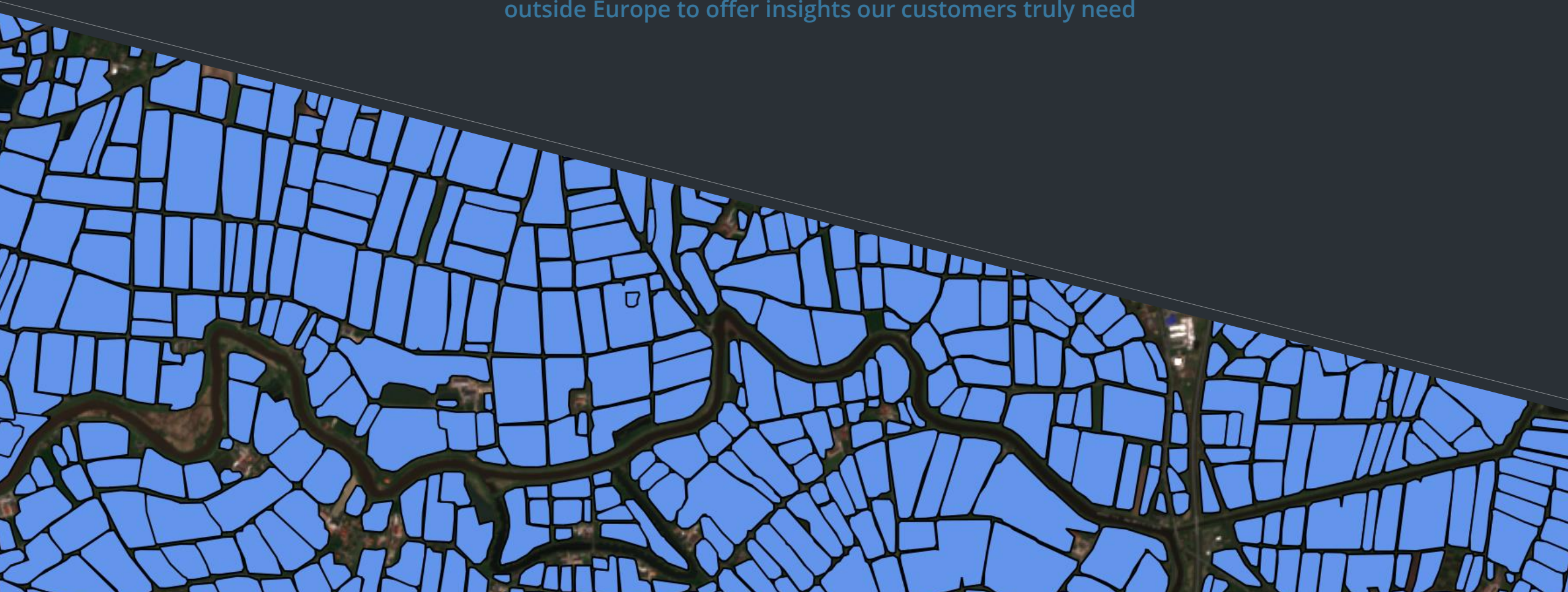
OUR VISION OF THE FUTURE

Building a whole suite of products and expanding the scope within and outside Europe to offer insights our customers truly need



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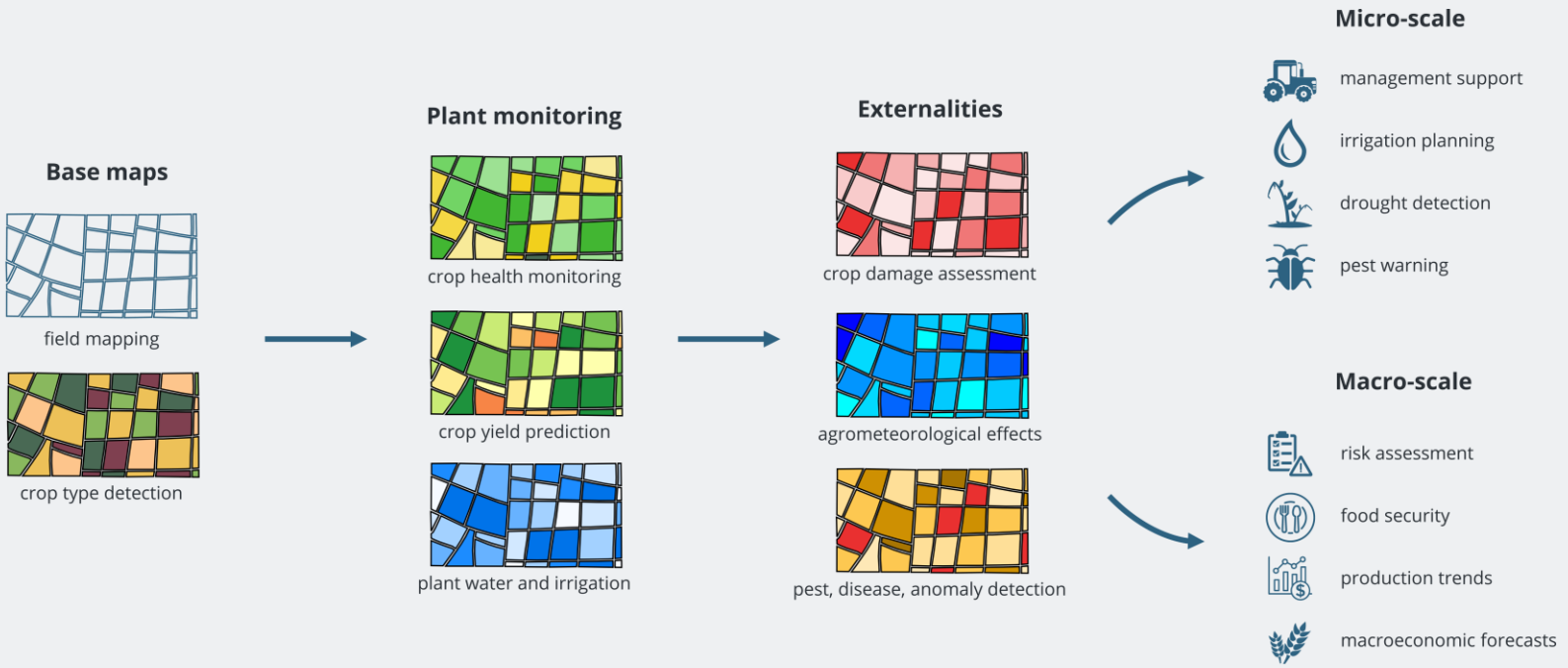

PRODUCT SUITE

Observing plant development on micro- and macro-scales

We monitor plant growth and development continuously on field- and sub-field levels to support crop management and early warning of anomalies locally.

We aggregate information on regional, national and continental scales to support risk and damage assessment, security and production forecasting.

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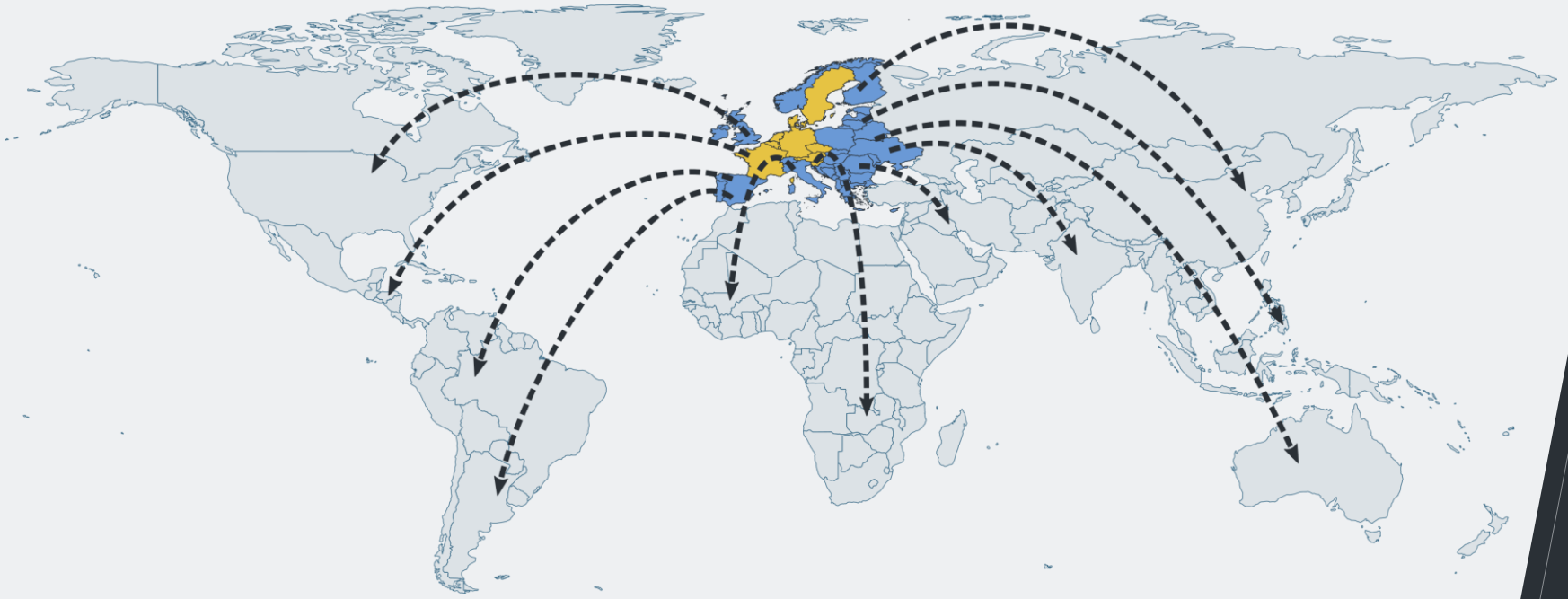

EXPANDED SCOPE

Broadening the perspective

Our goal is to increase the scope and scale of our services through regular update cycles and on-demand processing.

By increasing coverage within and beyond Europe, especially to developing and emerging countries, we help meet the growing demand for global information.

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AI and Deep Learning in Earth Observation

Panopterra specializes in Artificial Intelligence and Deep Learning techniques for Earth Observation applications.

Since 2021, Panopterra is part of the ESA Business Incubation Center Hessen & Baden-Württemberg.

esa business incubation centre Hessen

cesah Centrum für Satellitennavigation Hessen

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