

A background image showing a satellite view of the Earth from space, with a curved horizon and a blue sky. The image is partially obscured by a large orange diagonal shape in the bottom right corner.

UNLOCKING THE POWER OF SATELLITE-BASED DATA

USE CASES & CUSTOMER INSIGHTS

OH B DIGITAL's

Top 35

Downstream Use Cases

OHB IN NUMBERS...

TECHNOLGY COMPETENCE SINCE >40 YEARS ACROSS EUROPE

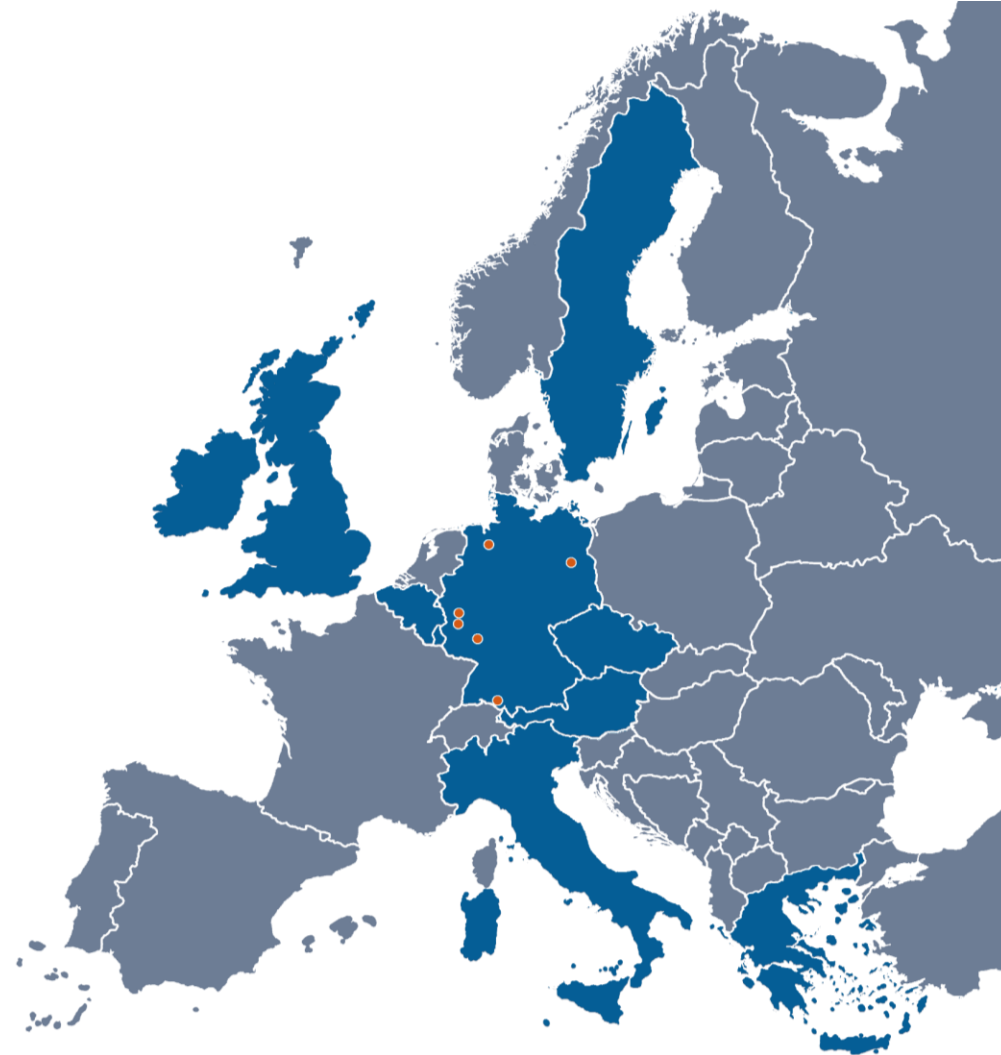


>40
years of experience

>1 bn
Euro turnover

12
countries with
OHB locations

>3.600
Experts



Germany | Italy | Sweden | Luxemburg | Czech Rep. | Greece | Austria | UK | Belgium | Chile

OHB DIGITAL IS PART OF THE OHB GROUP - ONE OF EUROPE'S LEADING TECHNOLOGY AND SPACE COMPANIES



SPACE SYSTEMS

OHB System AG

OHB Italia S.p.A.

OHB Sweden AB

Antwerp Space N.V.

LuxSpace Sarl

OHB Czechspace s.r.o.

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ACCESS TO SPACE

MT Aerospace AG

Rocket Factory
Augsburg AG

OHB Orbital Access
GmbH

MT Aerospace Guyane
SAS

MT Management
Service GmbH

European Spaceport
Company GmbH



DIGITAL

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OHB Teledata GmbH

GEOSYSTEMS GmbH

MT Management
Service GmbH

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ITS GmbH

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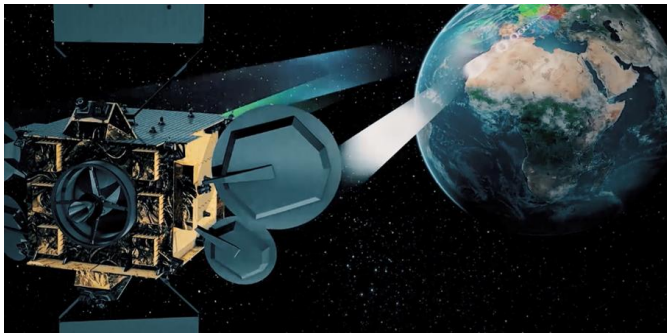
OHB Orbital Access
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Orbcomm Deutschland
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GO-TO-MARKET APPROACH

STRENGTHEN OUR COMMERCIAL ACTIVITIES IN THREE BUSINESS SEGMENTS

Midstream



We deliver high-end projects & operations for midstream space activities

„European **Midstream** Champion“

Security



We deliver security products & services for critical infrastructure and beyond

„European **Security** Champion“

Geospatial Analytics



We generate value from data & digitization for institutions & private companies

„European **Analytics** Champion“

DEEP DIVE GEOSPATIAL

OVERVIEW OF MAJOR ACTIVITIES AND TARGET MARKETS



Rationale

Target Customers

The continuous high need for digitalization of supply chains and assets is an attractive market for our software and product portfolio. We leverage our >30 years of experience from commercial projects to new markets



- Industry (e.g. logistic companies)
- Municipalities
- European institutions

EU-wide strong demand based on political goals to mitigate the impact of global climate change on citizens leads to continuously growing budgets. OHb DIGITAL provides here geospatial end-to-end SaaS solution



- Medium and large sized cities
- National and international institutions
- Global consultants and industry

Challenges like increasing costs of maintenance, hazardous events, growing regulation and need for transparency offer remote sensing. OHb DIGITAL will benefit with its excellent expertise and competitive positioning



- Global consultants / system integrators
- Globally acting industry companies
- Governmental institutions

Defense is already the biggest market for EO and continuous to show growing budgets in target markets GER and EU. Strong AI focus alongside with standard EO analytics demand offers new potentials and entry points



- Defense customers

WHERE WE SEE THE POTENTIAL

OHB DIGITAL HAS SIX CLEAR FOCUS AREAS IN ITS PRODUCT DEVELOPMENT



**RESILIENCE &
DEFENCE**

**CRITICAL
INFRASTRUCTURE**

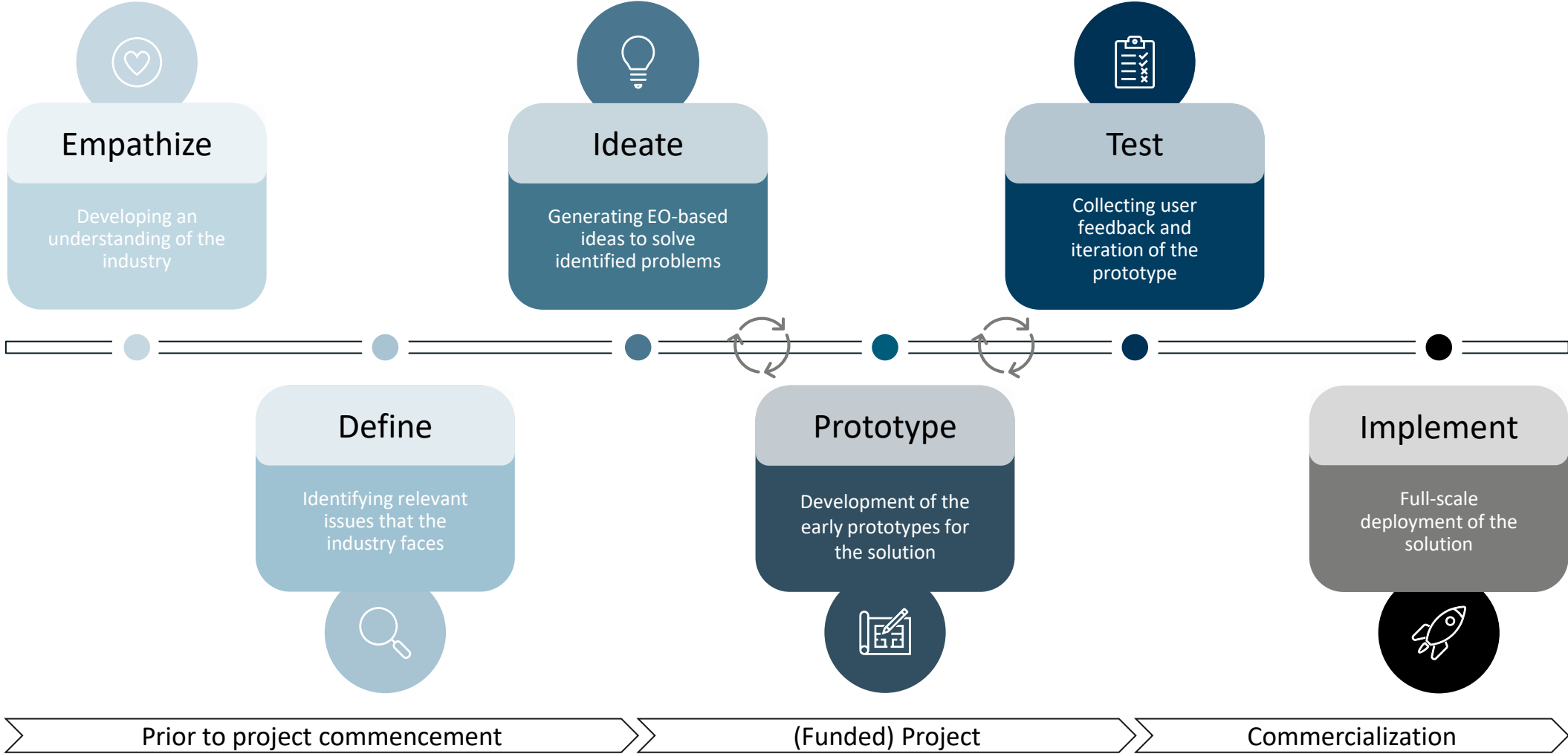
**CLIMATE &
ENVIRONMENT**

MARITIME

AGRICULTURE

DEVELOPMENT APPROACH

OHB DIGITAL TAKES A USER-ORIENTED APPROACH TO THE DEVELOPMENT OF NEW EO SOLUTIONS



01

RESILIENCE & DEFENCE

EUROPEAN CIVIL SECURITY

SUPPORTING COPERNICUS SECURITY SERVICES

Earth Observation technologies for supporting border control on issues caused by natural disasters and conflicts.

- Applications:
 - Conflict response: Analyzes conflict zone dynamics to support humanitarian and security responses
 - Climate change adaption: Tracks environment-induced population shifts for timely interventions
- Space technology
 - Integration of very high-resolution satellite data for detailed monitoring
 - Geo-analytics for precise and timely intervention

Your OHB Expert
Dr. Dominik Röhr



GEO ANALYTICS FOR PUBLIC SAFETY

MULTI SOURCE DATA AGGREGATION & FUSION

Advanced Geo Analytics services are crucial for providing high-level data analytics by integrating multi-source data, enhancing accuracy, and managing uncertainty. These services leverage time-series analysis, predictive modeling, and semantic abstraction to extract meaningful insights, supporting robust decision-making for civil security, defense, and other critical domains.

Key features:

- **Multi-source Data Aggregation & Data Fusion** integrates diverse data sources for improved accuracy and uncertainty management
- **Automated Object & Change Detection** to identify, segment, and track changes for proactive response
- **Time-Series Analysis & Prediction** detects trends and forecasts developments over time
- **High-level semantic abstraction** transforms data into actionable insights

Intended applications:

- **Civil Security & Defense** enhances situational awareness for decision-making
- **Disaster Management** supports preparedness, response, and recovery efforts
- **Environmental Monitoring** tracks environmental changes and impacts
- **Infrastructure Oversight** ensures reliability and safety of critical assets

Your OHB Expert
Dr. Alexander Kläser



MAP VALIDATION

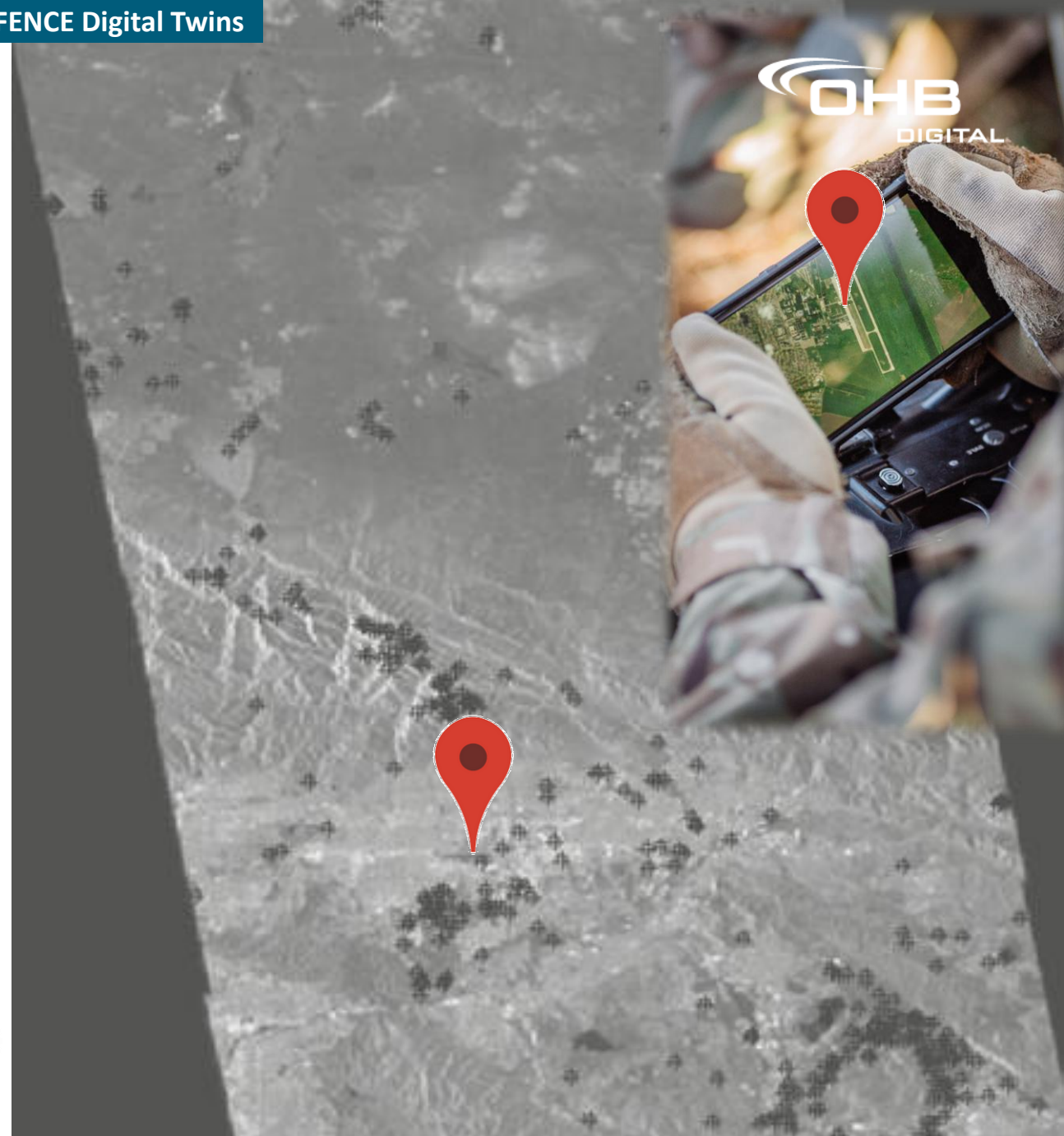
CHANGE INDICATOR FOR LARGE DATA SETS

Changes are meaningful. For defence application, detecting changes in large datasets are a major task for image analysts.

Based on radar data, we indicate areas of change automatically and return this “position of change” to image analysts and field experts.

- Project outcome:
 - Interferometric change layer based on radar images, here Sentinel-1
 - Geolocation of indicated change to be used in any geo-related software or device
 - Very fast availability of geolocations of potential change areas, directly in the field
- Integrated data sources
 - Radar satellite data, such as Copernicus Sentinel-1

Your OHB Expert
Armin Hoff



GNSS INTERFERENCE MONITORING

GIDAS

Identification, classification and localization of GNSS interferences, such as jamming and spoofing

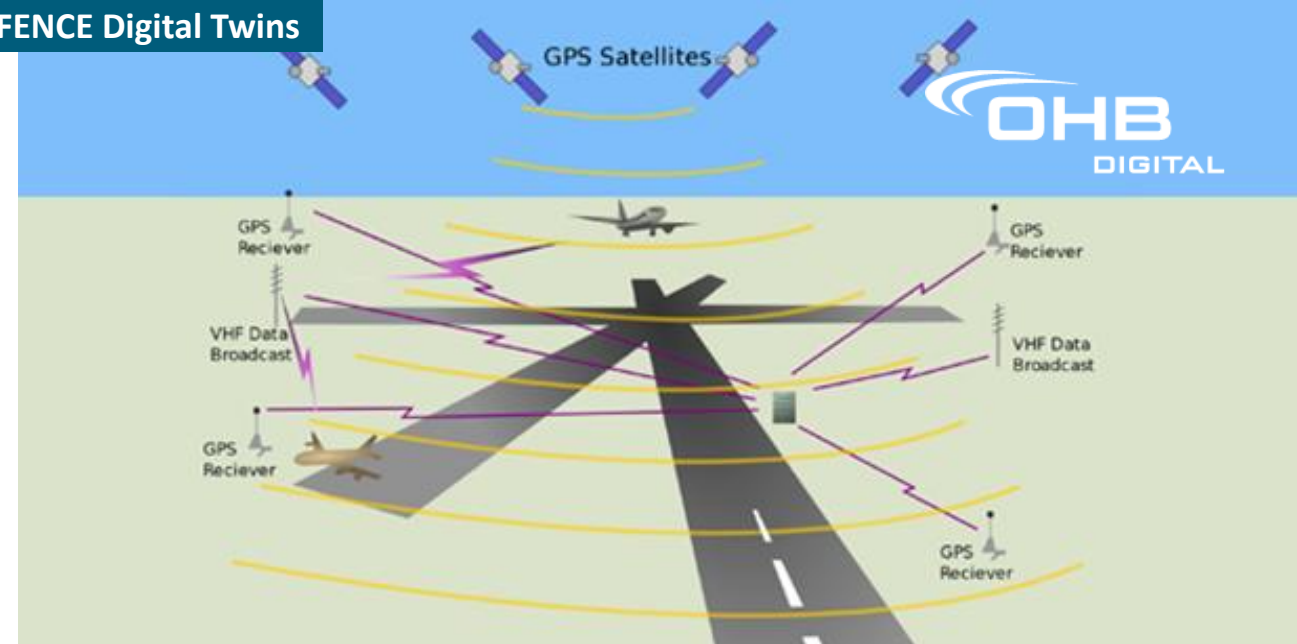
Example Applications:

- Large-scale installations as well as mobile systems or embedded algorithms are available
- Securing critical infrastructure, such as airports, harbours, power grids, tolling stations, etc.
- Localisation of interference sources to support law enforcement agencies or frequency regulators
- Calculation of timing and positioning degradation

Integrated data sources

- Using separate or receiver embedded GNSS antennas

Your OHB Expert
Bernhard Czar



EXPLOSIVE ORDNANCE DETECTION

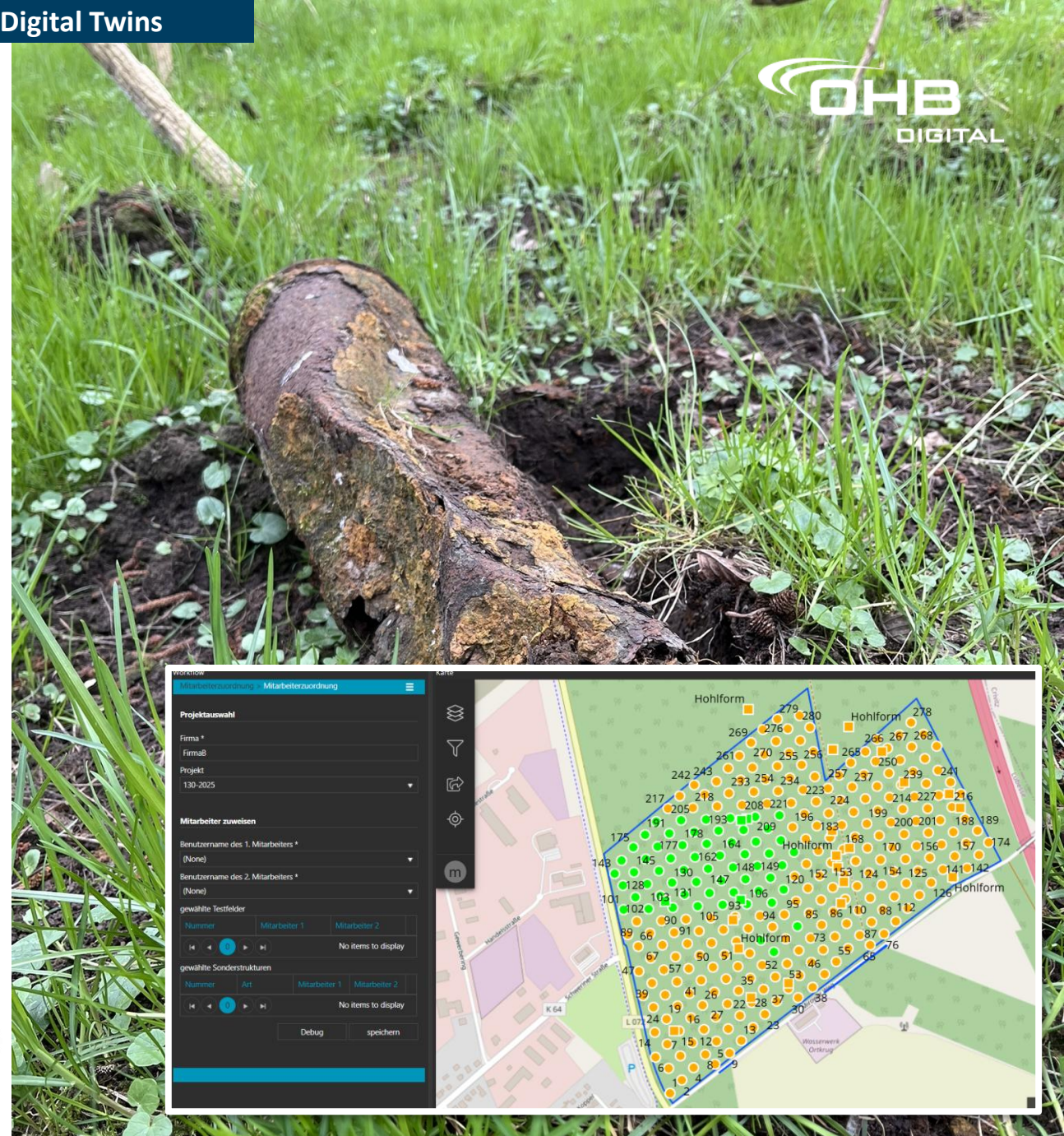
MOBILE APPLICATION FOR CLEARANCE ACTIVITIES

GEOSYSTEMS developed for the Mecklenburg-Western Pomerania Explosive Ordnance Disposal Service, Germany a mobile, fully integrated digital solution for the documentation and management of unexploded ordnance (UXO) clearance activities, significantly improving transparency, data quality, and operational efficiency compared to previous workflows.

Outcomes:

- Seamless data capture in the field and direct integration into central systems, ensuring consistent and reliable information availability across all stakeholders.
- Establishment of a standardized digital workflow for data collection and processing.
- Implementation of a secure and compliant data transfer mechanism between mobile devices and protected central databases.
- Significantly increased efficiency and reduced processing time through real-time or near-real-time data availability, while also minimizing input errors.

Your OHB Expert
Armin Hoff



02

CRITICAL INFRASTRUCTURE

MONITORING OF ENERGY INFRASTRUCTURE

SATELLITE-BASED ANALYSIS FOR THE EARLY DETECTION OF RISKS ALONG ENERGY INFRASTRUCTURE

Overview

- Satellite-based **detection of abnormal changes in the ground surface** near linear energy infrastructure. Enables the **early detection of potential risks**, such as unauthorized construction, thereby supporting **safe, efficient, and sustainable monitoring of energy infrastructure**.

Core Functions

- **Automated processing** of satellite images and **algorithm-based detection of anomalies** within defined zones along energy infrastructure routes. **Relevance-based prioritization** of the detected anomalies.
- **Web-based monitoring and case management application** that covers the entire workflow from **detection to decision-making**, including **interactive map visualization**, **case commenting**, **status tracking**, and a **traceable history**.

Value Proposition

- **Scalable end-to-end solution** for monitoring energy infrastructure that combines **automated risk detection** with human validation and decision-making in a single application.
- **Reduces operational overhead**, **decreases reliance on emission-intensive inspection methods**, **improves response times and traceability for regulatory authorities**, and **enables data-driven prioritization of on-site activities** through **standardized, repeatable monitoring procedures**.

Your OHB Expert
Joris Jaruschewski



LOGTWIN

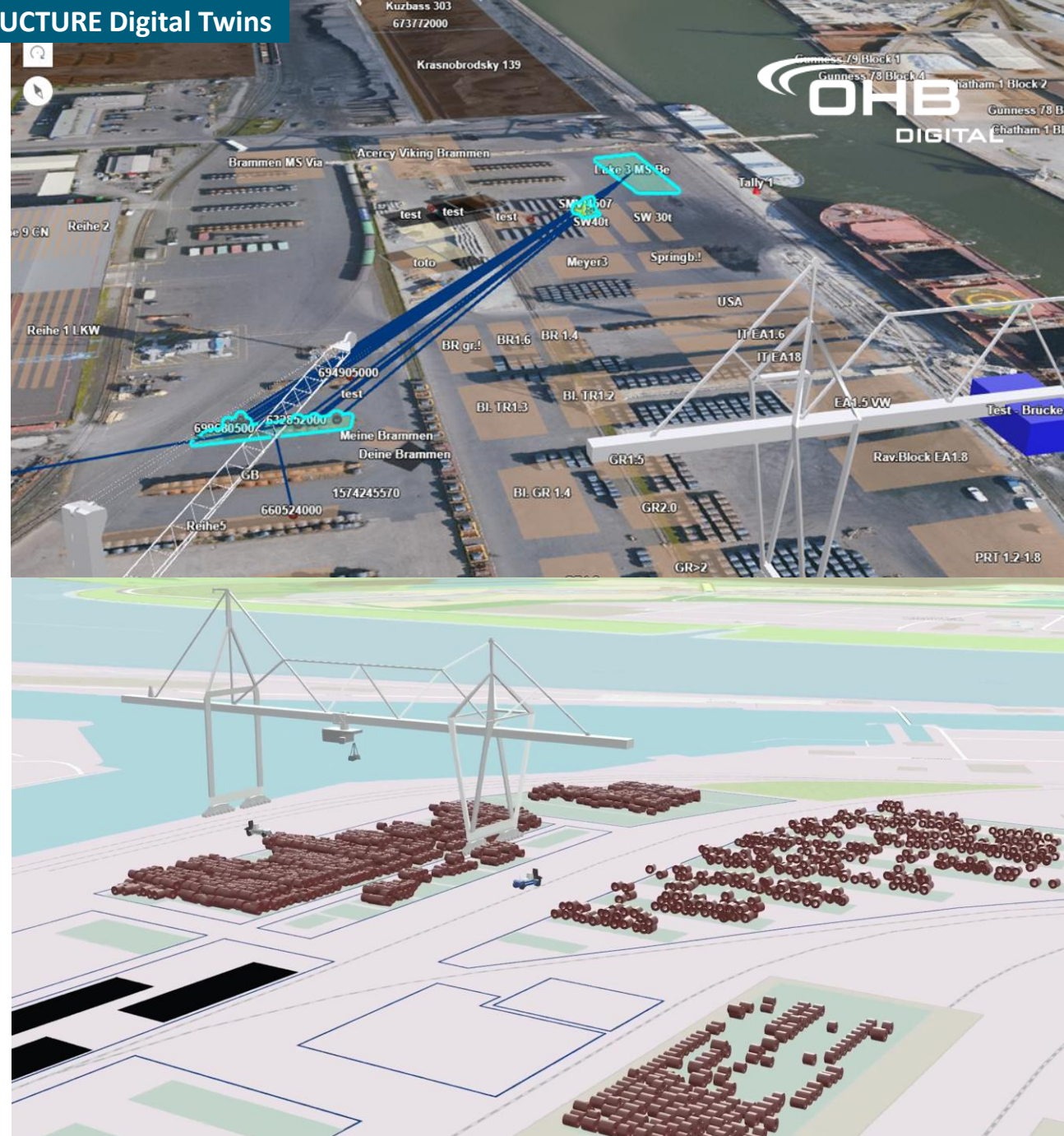
EFFICIENT WAREHOUSE MANAGEMENT BASED ON GNSS-BASED TRACKING SOLUTIONS

Many logistics companies face inefficient resource allocation due to lack of transparency in the supply chain. A key problem is the cost-efficient tracking of the flow of goods, materials and vehicles.

- Our LogTwin product:
 - All intralogistics processes in outdoor sites can be mapped in 3D
 - Provide full process transparency: Plan/automate/optimize workflows
 - Our Technology
 - By combining AI, smart sensors and satellite data we create digital twins of company processes and supply chains based on cloud-based software architecture
 - Indirect 3D location tracking using the digital fingerprint
 - Customer Benefit
 - Improving resource efficiency ~25%
 - Reducing loading errors to zero
 - Reducing CO2 footprint
- Your OHB Expert**
Dr. Darko Ojdanić



Your OHB Expert
Dr. Darko Ojdanić



INFRASTRUCTURE MONITORING

SUPPORT FOR 24/7 MONITORING OF CRITICAL INFRASTRUCTURE

EO-based infrastructure monitoring is essential for ensuring the reliability of critical systems such as energy grids and transportation networks. By providing near real-time data, it enables predictive maintenance, minimizing failures and disruptions. Additionally, it enhances disaster preparedness and response by delivering comprehensive insights into environmental risks, structural integrity, and emerging threats.

Key features:

- AI-based **change and anomaly detection** of infrastructure networks
- Advanced analytics by combining **complementary sensor data** such as optical and Radar-based SAR image data
- Enhanced **weather robustness** utilizing multi-sensorial, complementary data to improve performance under various weather conditions

Intended applications:

- Instantaneous infrastructure monitoring for railways, energy grids, and transportation networks, providing continuous oversight
- Situational Awareness providing real-time insights for informed decision-making
- Enhanced preparedness and Disaster Management

Your OHB Expert
Phil Daro Krummrich



RAIL TEMPERATURE MONITORING

HOURLY DATA ON RAIL TRACK TEMPERATURES

Overview

- Hourly monitoring and forecasting of track temperatures based on satellite data using machine learning models that intelligently combine satellite data, weather forecasts, and radiation information.

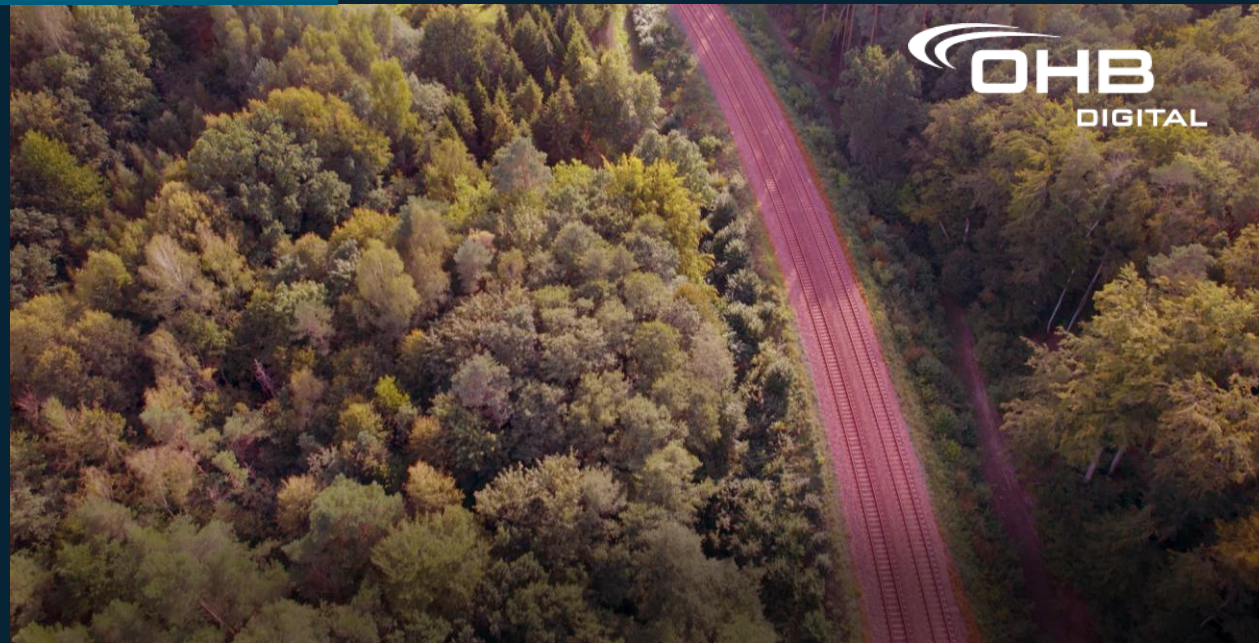
Core Functions

- **Hourly data provision**
- **High-resolution output data (30-meter accuracy)** for precise local assessments
- **Short-term forecasts up to 48 hours** for timely decision-making
- **Additionally: Integrated risk model** for assessing the probability of track buckling

Value Proposition

- Provides **accurate and timely information** for risk and stress analyses. Enables **optimized maintenance planning, increased operational safety**, and **early response** to potentially critical thermal conditions.

Your OHB Expert
Alina Klapper



LAND SURVEY AUTHORITIES

STATE-WIDE SENTINEL SERVICES

The land survey offices and geoinformation centers in Germany are regularly tasked with providing remote sensing-based spatial information. A solution to automate the download, processing and sharing of terabytes of Copernicus and Sentinel satellite data was needed.

- Project outcome:
 - Uninterrupted download of Sentinel data according to specific and individually set parameters. Atmospheric correction, including cloud and cloud shadow masks and a cloudless mosaic of the entire state
 - Ingesting the mosaic as WMS into the existing regional web portal or as a 24/7 INSPIRE conform OGC-WCS2.0 service
- Integrated data sources
 - Copernicus Sentinels

Your OHB Expert
Armin Hoff



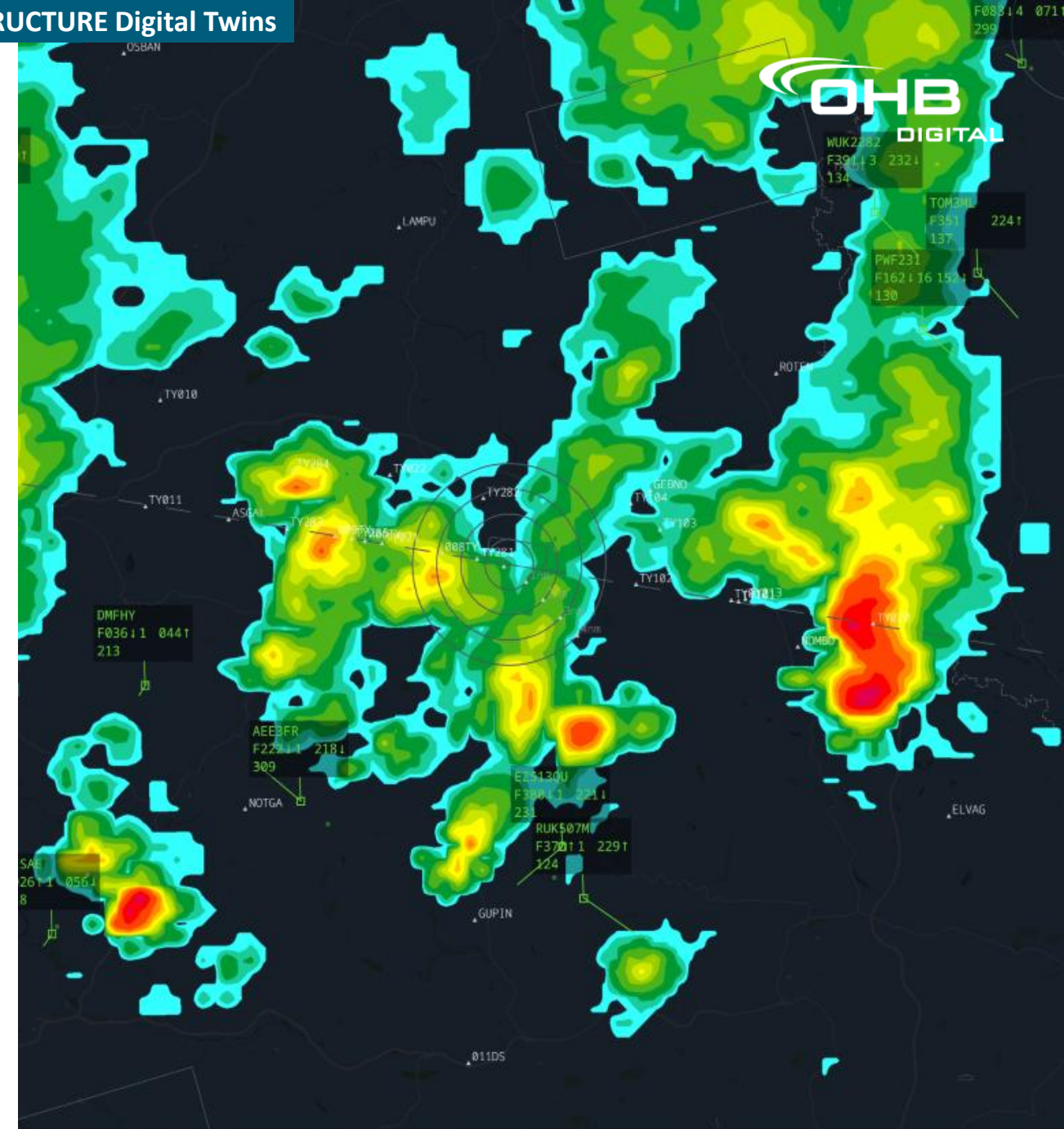
AIRTRACKS

FLIGHT INFORMATION SERVICE

Cost efficient flight information service for small and medium-sized airport towers for an enhanced airport safety during approach and departure.

- Integration of aircraft surveillance information (ADS-B, RADAR, MLAT, FLARM, ...) in the vicinity of the airfield
- Visualization of air traffic on a web frontend
- Integration of relevant and customized ancillary information layers in a user-friendly way
 - Flight plan
 - Aeronautical charts
 - Meteo Information
 - eNOTAM (e.g. Birdtam)
- Demo system implemented at the Adolf Würth Airport Schwäbisch Hall

Your OHB Expert
Dr. Gerd Eiden



SPACE4LEVELCROSSING

ANALYSIS OF VISIBILITY CONDITIONS AT LEVEL CROSSINGS

Overview:

- Use of Earth observation data to support the monitoring of visibility conditions at not technically secured level crossings.

Key Features:

- **Satellite-Based Visibility Analysis** Using High-Resolution Image Data
- **Calculation and dynamic display of fields of view** based on user-defined parameters
- **Field navigation** to guide inspection teams directly to relevant vantage points

Value Proposition:

- **Increases the efficiency and transparency** of visibility assessments, **saves time and resources**, and **supports safety and compliance** at level crossings.

Your OHB Expert
Dr. Danijela Ristic-Durrant



DIGITAL TWIN COMPONENT: ENERGY

EARTH OBSERVATION FOR ENERGY RISKS (EO4ER)

Being one of the **leading renewable energy sources** EO4ER focuses on two use cases regarding **solar energy systems** and implements an early **DTC prototype** as part of the ESA Digital Twin Earth Program:

- **Use Case 1:** Using weather (e.g., air temperature, snowfall, windspeed) and solar irradiance forecasts, **predict** the **impact** of (existing or hypothetical) **PV systems** to the connected **low voltage networks**, which particularly includes **power production** predictions of **individual PV systems**. The solar irradiance forecast is based on MSG as well as the novel MTG mission. Due to the increased number of PV systems connected to the grid this use case is of high relevance for the operational business as well as grid extension and planning.
- **Use Case 2:** Assessment of **PV performance** and **risks** in terms of annual PV yield and **damage potential** based on different climate projections as well as PV production estimations with respect to realistic extreme conditions that are expected to (frequently) appear in the upcoming decades.
- **Stakeholders:** Prosumer, Grid Operators, Energy Provider (trading), PV Companies, Financial Institutions, Insurance Companies etc.

Your OHB Expert
Dr. Ingo Schoolmann



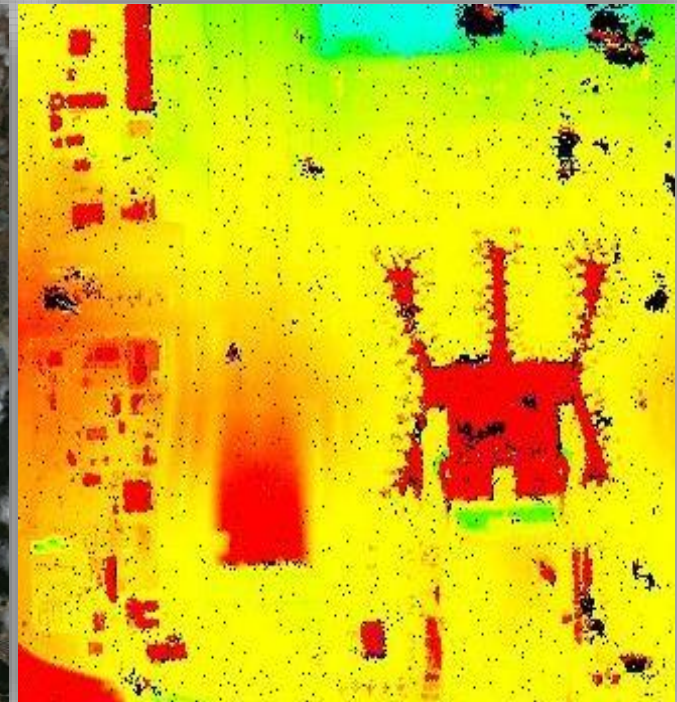
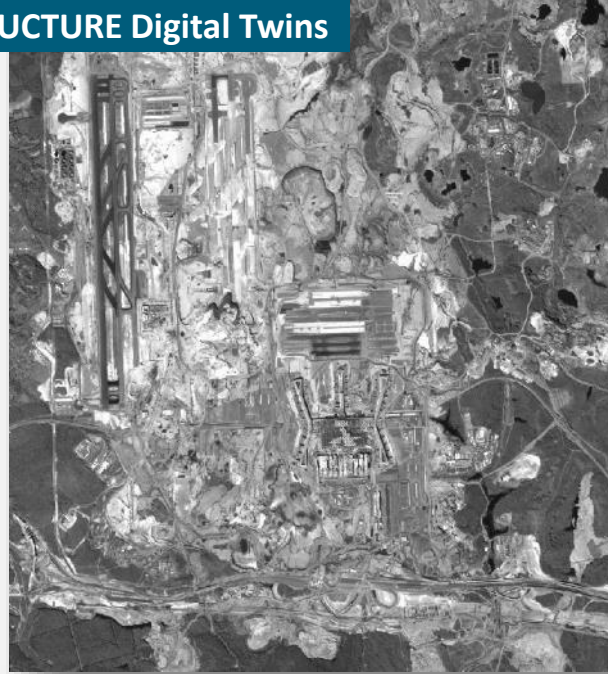
MONITORING CONSTRUCTION SITES

LEVERAGING STEREO SATELLITE DATA FOR CHANGE DETECTION

Monitoring of large construction sites like the airport of Istanbul by the means of stereo satellite data and a photogrammetric workflow.

- Project outcome:
 - Detection of object states and object changes based on point clouds
 - Derivation of information as volume changes (increase or decrease), type and form of change as well as measurements
- Integrated data sources:
 - Stereo satellite data such as WorldView-1 (PAN) and WorldView-2 (RGBNIR)

Your OHB Expert
Eva Walter



URBAN PLANNING

HISTORICAL ORTHO PHOTOS AND AI-POWERED BUILDING LAYERS

Unlocking the value of historical aerial imagery archives by transforming aerial photographs into high-accuracy orthophoto mosaics and AI-generated building layers. Enabling municipalities to analyze urban development over the past decades, monitor building changes, and support cadastral and urban planning processes.

For the Berlin district Charlottenburg-Wilmersdorf, GEOSYSTEMS processed 600 aerial photographs from 1974 and created orthophoto mosaics while achieving submeter accuracies, significantly exceeding project requirements.

Outcomes

- Aerotriangulation and orthorectification performed despite challenging source material, including missing camera calibration data and irregular flight patterns.
- Automated extraction of building footprints using a two-stage AI workflow developed by deeper.technology.
- Vision Transformer models were successfully adapted from RGB imagery to historical black-and-white aerial photographs.



Your OHB Expert
Armin Hoff



PHOTOREALISTIC DIGITAL TWINS

3D MESHES BY DRONE DATA AND MORE

Generating highly detailed 3D meshes, orthophotos, point clouds, and elevation models from a wide range of image and LiDAR data with commercial software by Skyline Software Systems, Inc.. Used in applications such as urban planning, infrastructure, inspections, and 3D GIS management.

Outstanding in terms of accuracy and level of detail. By utilizing multi-computer processing, available computing resources are fully leveraged to efficiently process large data sets.

Key Features:

- Support for high fidelity, photorealistic 3D reconstruction using Gaussian Splatting.
- Quick Ortho Generation: Integrated support for the ultra fast orthophoto workflow.
- Advanced Fuser Management for better scalability, hardware scheduling, and resource utilization.
- Multispectral Output: NDVI and GRVI generation for orthophotos.

Your OHb Expert
Armin Hoff



03

CLIMATE & ENVIRONMENT

CITY CLIMATE DATA SERVICES

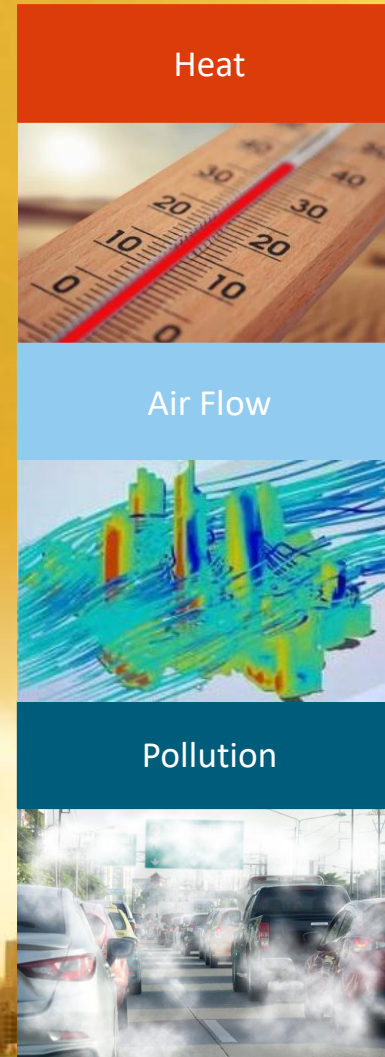
MAKING HIGH-RESOLUTION CLIMATE SIMULATIONS & PREDICTIONS BASED ON COPERNICUS DATA

Development of a Generic City Climate Platform and City Climate Services in the scope of the current and upcoming climate-related challenges in urban areas with the aspects:

Project outcomes:

- **Identification:** Statistical analysis for identification of critical areas with respect to heat, air flow pattern and pollution
- **Simulation:** Users can simulate changes to urban areas and obtain analysis of the impacts to urban climate with respect to heat, pollution and airflow pattern
- **Warnings:** Monitor upcoming and ongoing heat waves and identification of strongly impacted areas
- **Information:** Actual and historical climate data for analysis and visualization

Your OHb Expert
Dr. Ingo Schoolmann



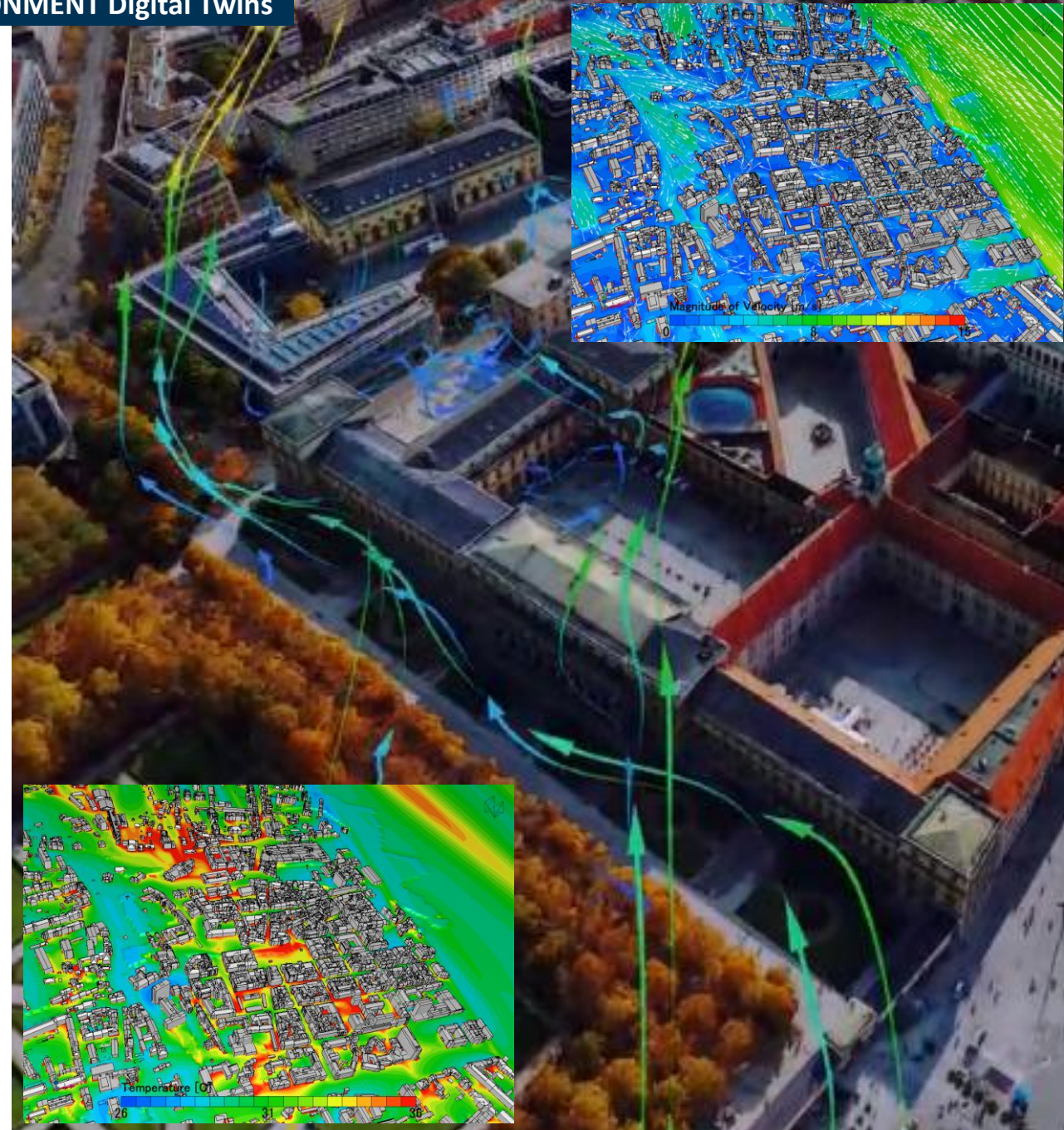
URBAN CLIMATE SIMULATION PLATFORM

ENABLE CITY PLANNERS TO SEAMLESSLY INTEGRATE SIMULATION OF URBAN CLIMATE PARAMETERS

Development of a commercial, cloud-based SaaS Solutions to simulate urban climate parameters and biometeorological indices.

- Outcome:
 - Commercial web-portal for cities and municipalities in Germany
 - Cities and municipalities will be enabled to simulate heat and wind fields (air pollution in a next phase) in a 3D city model for city planning purposes
 - Country wide 3D base-data embedded, so small municipalities can simulate their urban climate without the need to create their own geodata
- Integrated data sources
 - German-wide DOP (open data from German mapping agencies)
 - German-wide Ai-based landcover layer
 - German-wide voxel model
- Integrated Hexagon computational fluid dynamics software (CFD)

Your OHB Expert
Armin Hoff



VEGETATION MONITORING

SATELLITE-BASED ANALYSIS TO ASSESS CURRENT VEGETATION VITALITY AND TRENDS

Overview

- Analysis and assessment of vegetation vitality based on satellite data.
- Enables continuous monitoring and trend analysis to support sustainable urban development.

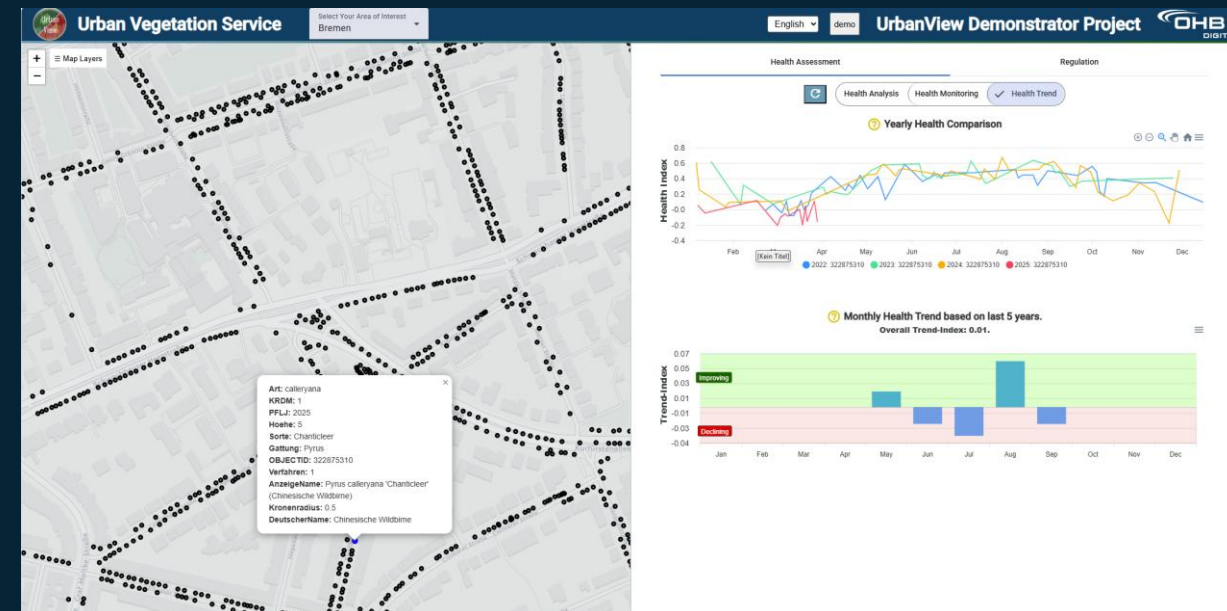
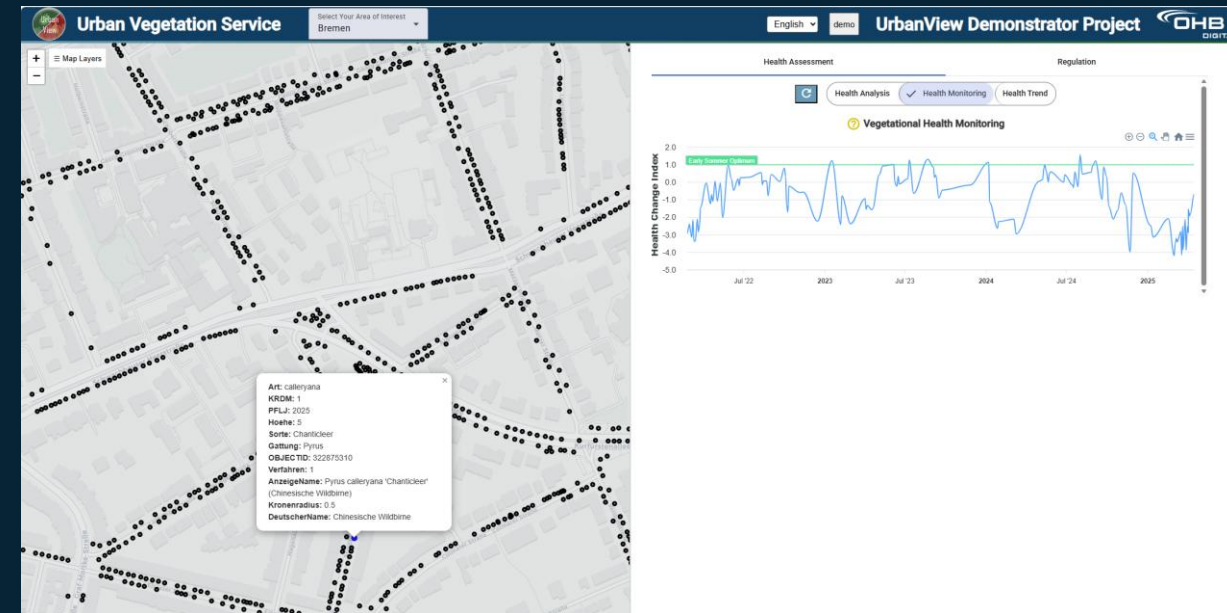
Core Functions

- Use of optical and near-infrared satellite data for indicator-based assessment of vegetation condition
- **Time-series comparisons for early detection of trends**
- Cross-area scalability and integration into GIS-based planning systems

Value Proposition

- **Objective and reproducible data set for assessing vegetation.**

Your OHB Expert
Dr. Ingo Schoolmann



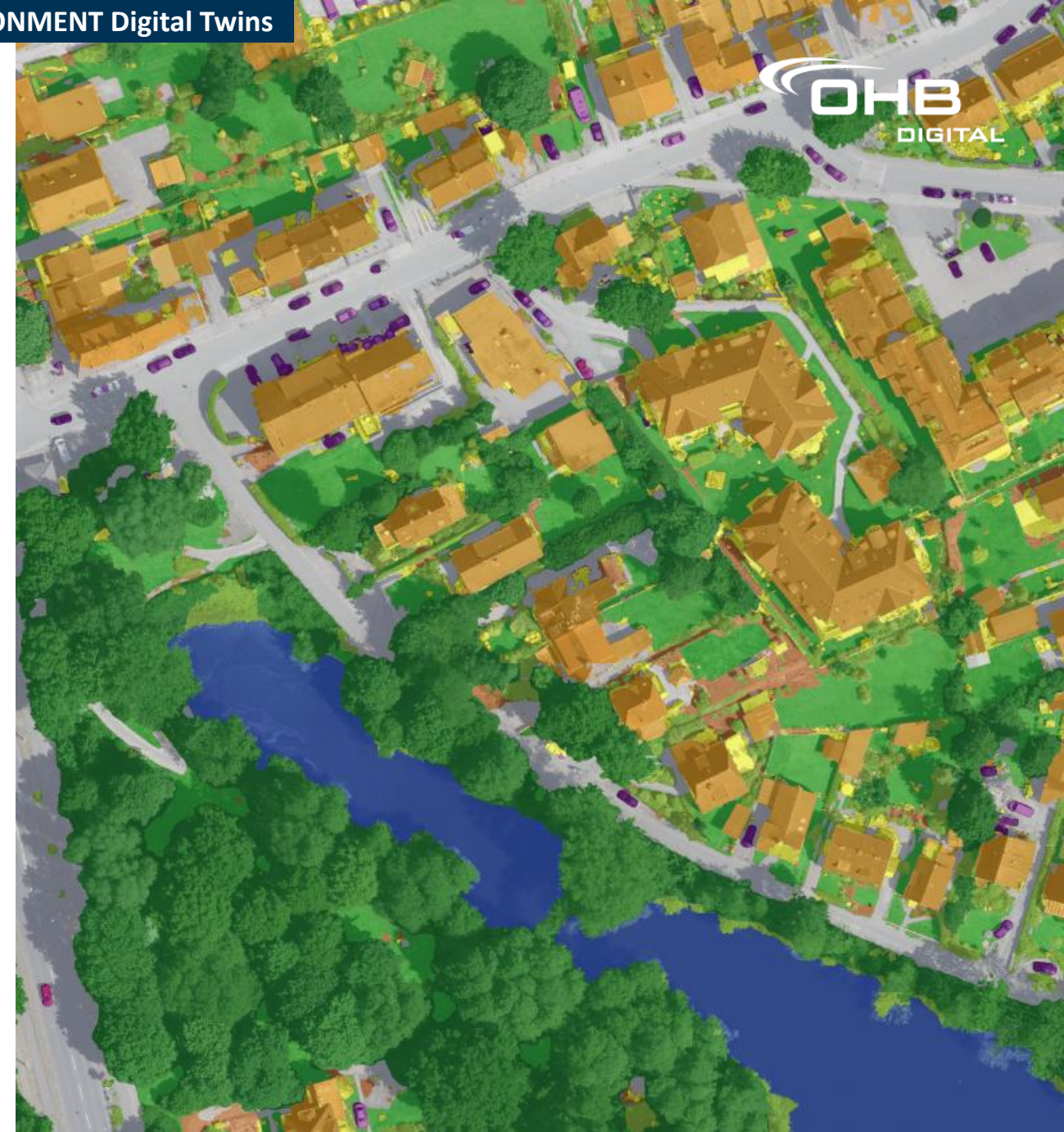
LAND COVER CLASSIFICATION

FULL-AUTOMATED LAND COVER CLASSIFICATION

Land cover information is vital for cities as it provides the basis for decisions in urban planning, environmental management, and climate adaptation strategies.

- Key features:
 - Application and customization of state-of-the-art deep learning models for the detection of typical urban land cover classes
 - Detection of up to 30 land cover/object classes (e.g., roof types, vegetation types, sealed surface/pavement types, loose surface types)
 - Provision in raster or vector formats
- Intended applications:
 - Verification of cadastre data
 - Monitoring of land use change
 - Preparation of data-driven decisions
 - Monitoring the effectiveness of subsidies and restrictions

Your OHB Expert
Phil Daro Krummrich



ANALYSIS OF CHANGES IN GREEN SPACE

MONITORING AND EVALUATION OF GREEN SPACE DEVELOPMENT (PARTICULARLY IN THE CONTEXT OF REGULATORY REQUIREMENTS)

Overview

- Analysis and assessment of **changes in green spaces** based on satellite data.
- Supports the **monitoring of long-term trends** and **regulatory targets**.

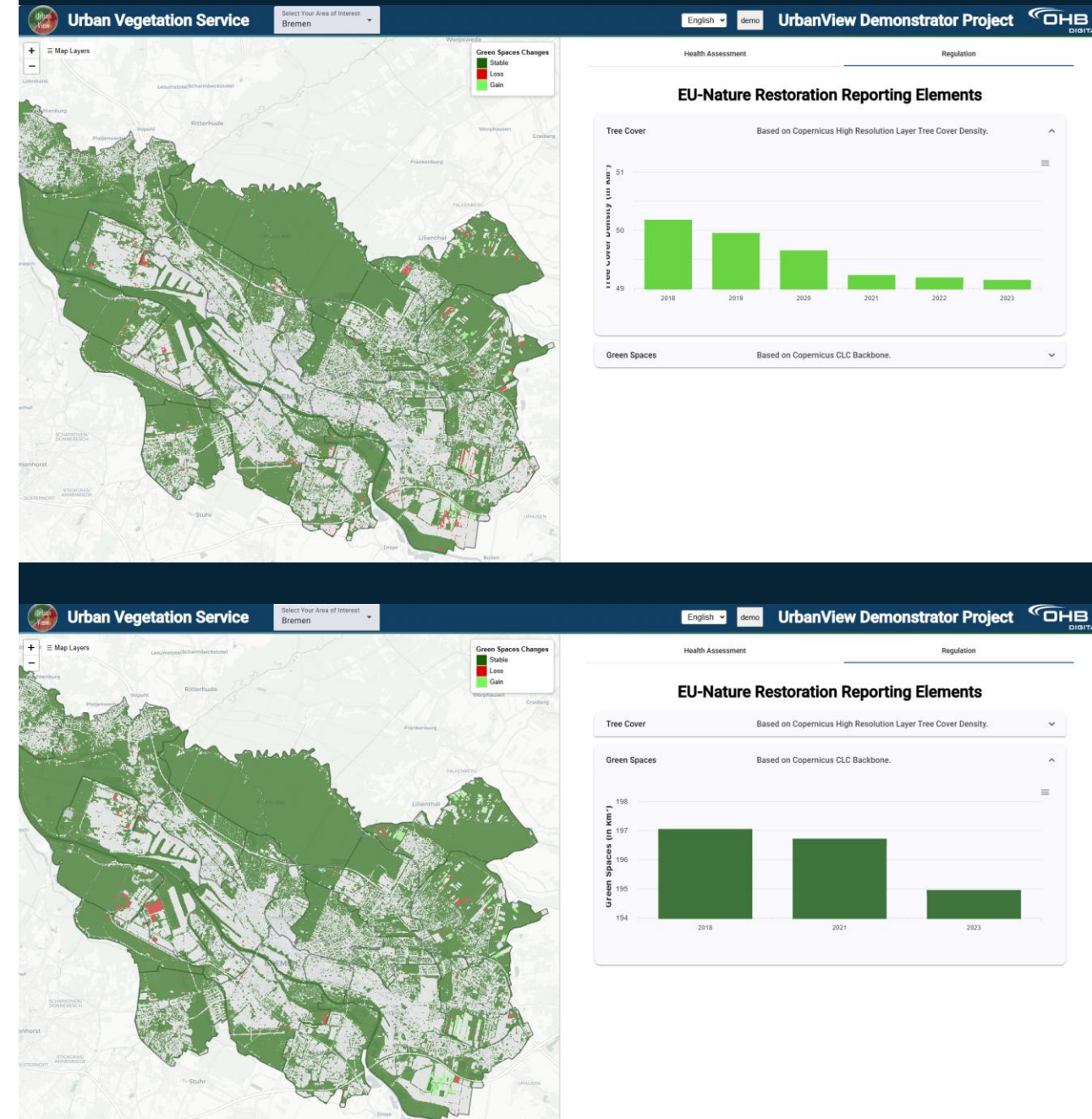
Core Functions

- Use of Satellite Data to **Quantify Changes in Green Space**
- **Time-Series Analysis** to **Assess Trends Over Several Years**
- **Spatial Visualization** of Increases and Decreases in Green Space

Value Proposition

- **Objective and scalable data foundation** to support **reporting and monitoring** in the context of **environmental and climate goals**

Your OHB Expert
Dr. Ingo Schoolmann



TREE DETECTION FROM SATELLITE DATA

AUTOMATED DETECTION AND MAPPING OF TREES FOR
COMPREHENSIVE INVENTORY ANALYSIS

■ Overview

- **Automated detection and mapping of individual trees** based on high-resolution satellite data. Enables **comprehensive mapping** and **regular updating** of tree populations.

■ Core Functions

- **Use of AI-based models to detect trees** in high-resolution satellite images
- **Determination of tree locations and distributions** at different spatial scales
- **Repeatable analyses for updating and expanding existing tree inventories**

■ Value Proposition

- **Objective and scalable data foundation** for the **planning, monitoring, and management** of urban tree populations.

Your OHb Expert
Dr. Ingo Schoolmann



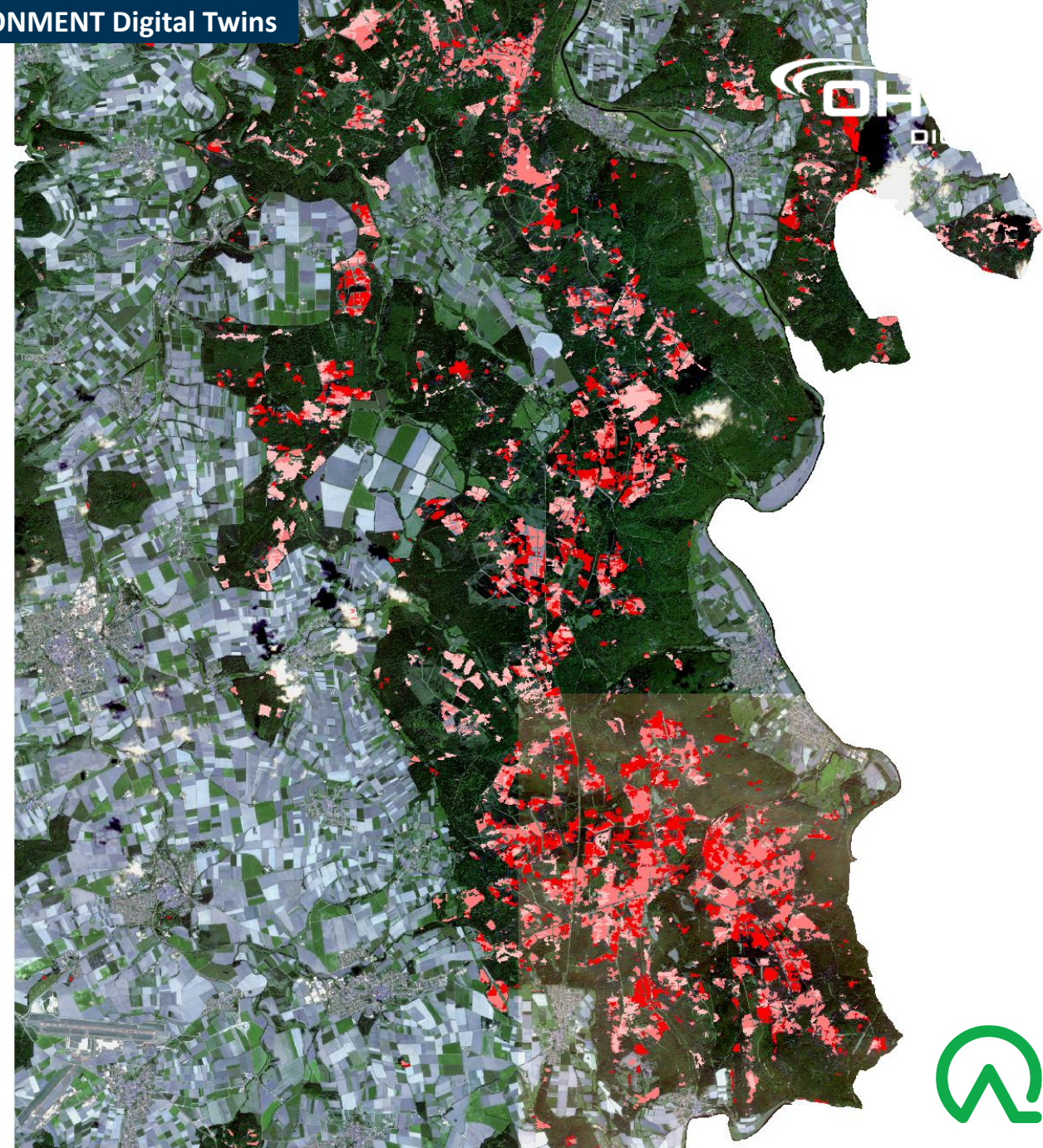
FOREST MONITORING

CALAMITY MONITORING OF CONIFEROUS FORESTS WITH SENTINEL-2 SATELLITE DATA

The state enterprise HessenForst in Germany is responsible for the annual mapping of the forest damage areas as a critical basis for the management of the forest crisis. It is needed particularly for the planning of reforestation, but also for tax depreciation as a result of the decrease in value of forests, forestry planning and a wide range of nature conservation concerns.

- Project outcomes:
 - Automated processing workflow of Sentinel satellite data including download, atmospheric correction, cloud mask and mosaicking for image series in a very short period of time
 - Change detection and classification of tree types and damages, also by machine learning technology
- Integrated data sources:
 - Copernicus Sentinel-2 and Planet Dove

Your OHB Expert
Armin Hoff



REFORESTATION ANALYSIS

USING SATELLITE DATA FOR MONITORING TREE GROWTH

Green Steps is at the forefront of one of the fastest moving technologies to help monitoring the state and success of reforestation projects. It uses a multi-spectrum remote sensor technology. The project focused on finding a solution to measure the growth of trees with satellite data.

- Project outcome:
 - Precise vegetation monitoring
 - Photogrammetric processing on stereo satellite data to calculate height differences on trees in reforestation areas in Madagascar
 - Ingesting the results into customer's app to answer the question "How is the tree that was planted with my donation growing?"
- Integrated data sources
 - Satellite data, such as Copernicus Sentinel, Planet and WorldView

Your OHB Expert
Armin Hoff



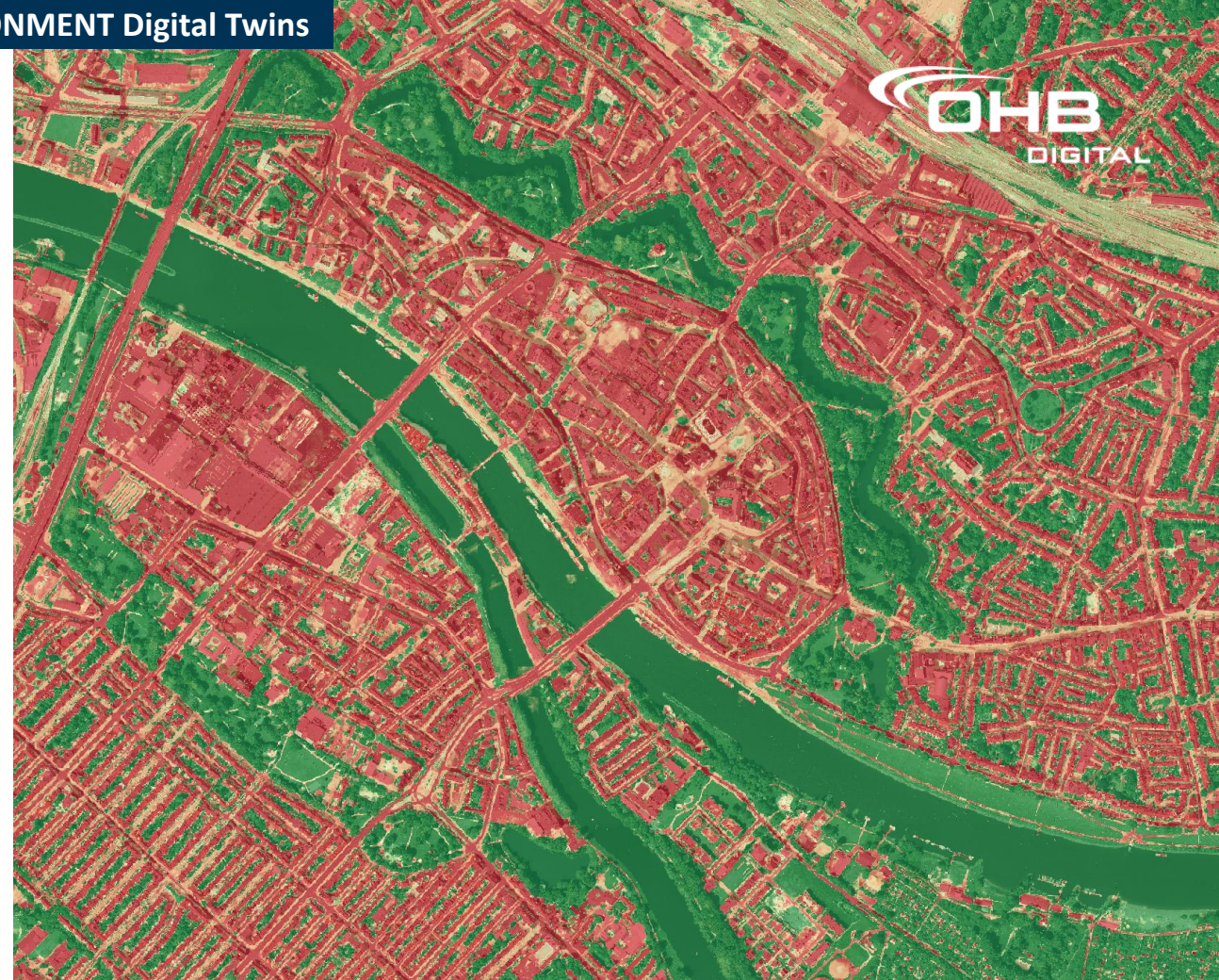
URBAN FEATURES MONITORING

CONTINUOUS AND FULLY AUTOMATIC MONITORING

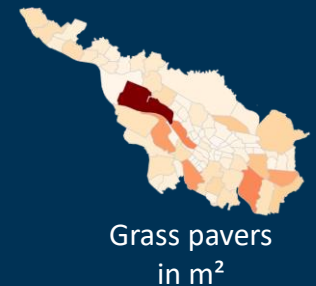
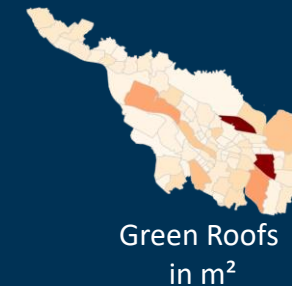
Monitoring urban features like solar panels and sealed surfaces is crucial for optimizing energy efficiency, managing urban heat islands, and improving stormwater management. It supports informed decision-making in infrastructure development and helps to enforce policies for sustainable urban growth. Accurate data on these features ensures better resource allocation and environmental impact assessment.

- Key features:
 - Deep-learning based evaluation of airborne imagery for accurate and detailed analysis
 - Post-processing techniques to eliminate surface type obstructions, ensuring clear and precise data
 - Raster layer representation of, e.g., soil sealing degree for comprehensive urban planning and environmental management
- Intended applications:
 - Identification of, e.g., solar panels, sealed surfaces & unsealing potential, green roofs, construction potential, land use
 - Monitoring the efficacy of regulatory interventions
 - Sustainable city development

Your OHB Expert
Phil Daro Krummrich



Meta analysis



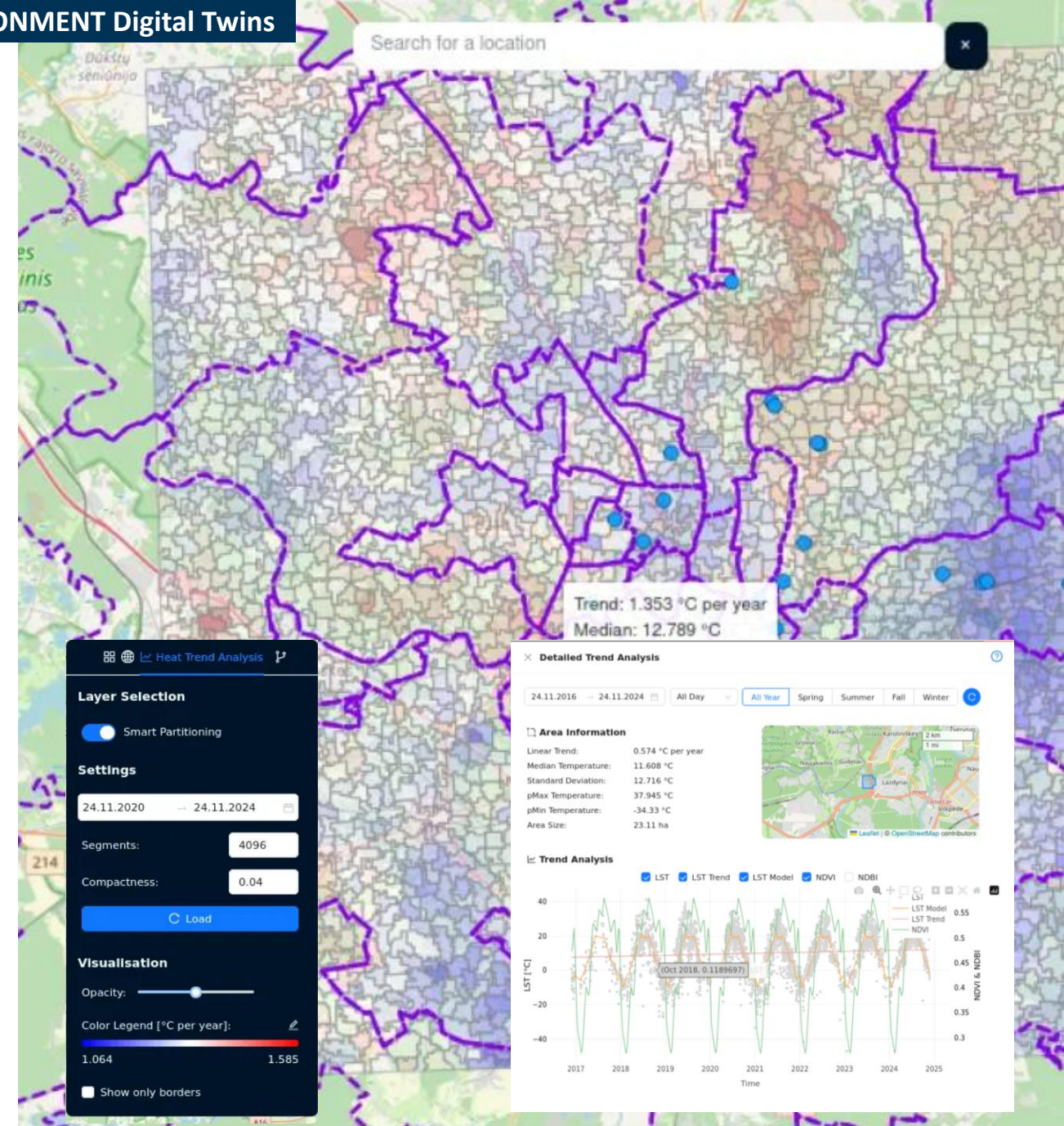
URBAN HEAT MONITORING

OPTIMIZING PRE-PROCESSING OF IMAGE DATA VIA DEEP LEARNING TECHNOLOGIES

Climate change has significant influence upon human health and the quality of life in cities. Urban Heat Islands (UHIs) arise with the urbanization process that change the thermal and radiative properties of natural landscapes.

- Key features:
 - Harmonization/consolidation of LST data sources
 - Identification of regions with homogeneous trends (heating / cooling)
 - Analysis of temperature time series to track changes and trends.
 - Seasonality-trend decomposition to separate seasonal effects from long-term trends.
- Intended applications:
 - Quantification of climate change effects
 - Assessment of causal relationships
 - Monitoring the efficacy of regulatory interventions
 - Data input for devising local heat action plans
 - Data input for microclimate simulations
 - Building value estimation

Your OHB Expert
Phil Daro Krummrich



HIGH RESOLUTION TEMPERATURE DATA

COMBINED SATELLITE AND AIRBORNE TEMPERATURE-DATA

High-resolution land surface temperature (LST) data is crucial for urban planning as it helps identify and mitigate urban heat islands, improving public health and comfort. Additionally, LST data aids in climate adaptation strategies, enhancing resilience against extreme weather.

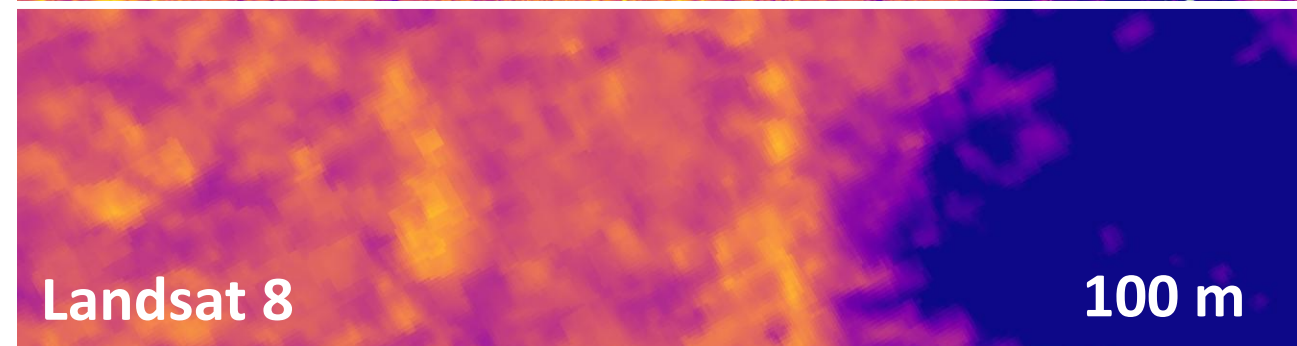
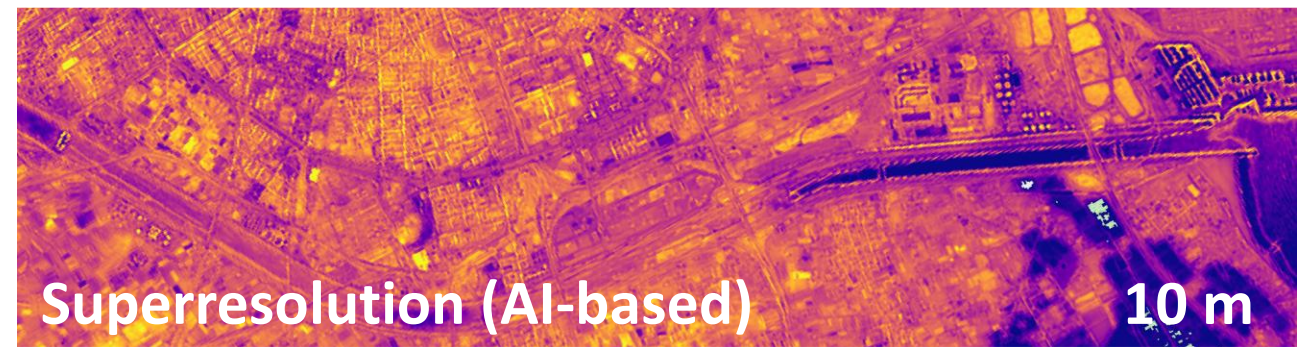
Key Features:

- **Harmonization/consolidation of LST** data sources
- **AI-based super resolution method** for up to 10x spatial resolution
- Provision of **(sub-)daily temperature data** at high resolution
- Combination of **satellite-based screening** and **airborne-based spotting**
- OHB's exclusive, innovative sensor system **RAVEN** (Remote Airborne Variable Emissivity and Temperature SeNsor) for airborne acquisition

Intended applications:

- Recording heating and cooling events in cities
- Monitoring of heat sensitive infrastructures, e.g., heat pipes, energy infrastructure, thermal insulation of buildings
- Cal/Val activities for satellite missions

Your OHB Expert
Phil Daro Krummrich



AREA-BASED CLIMATE DATA ANALYSIS

DYNAMIC INTEGRATION OF SATELLITE AND REANALYSIS DATA FOR REGIONAL TIME-SERIES ANALYSIS

Overview

- Dynamic analysis of climate-relevant parameters based on satellite data. Enables area-based evaluation, continuous monitoring, and trend analysis for freely definable regions.

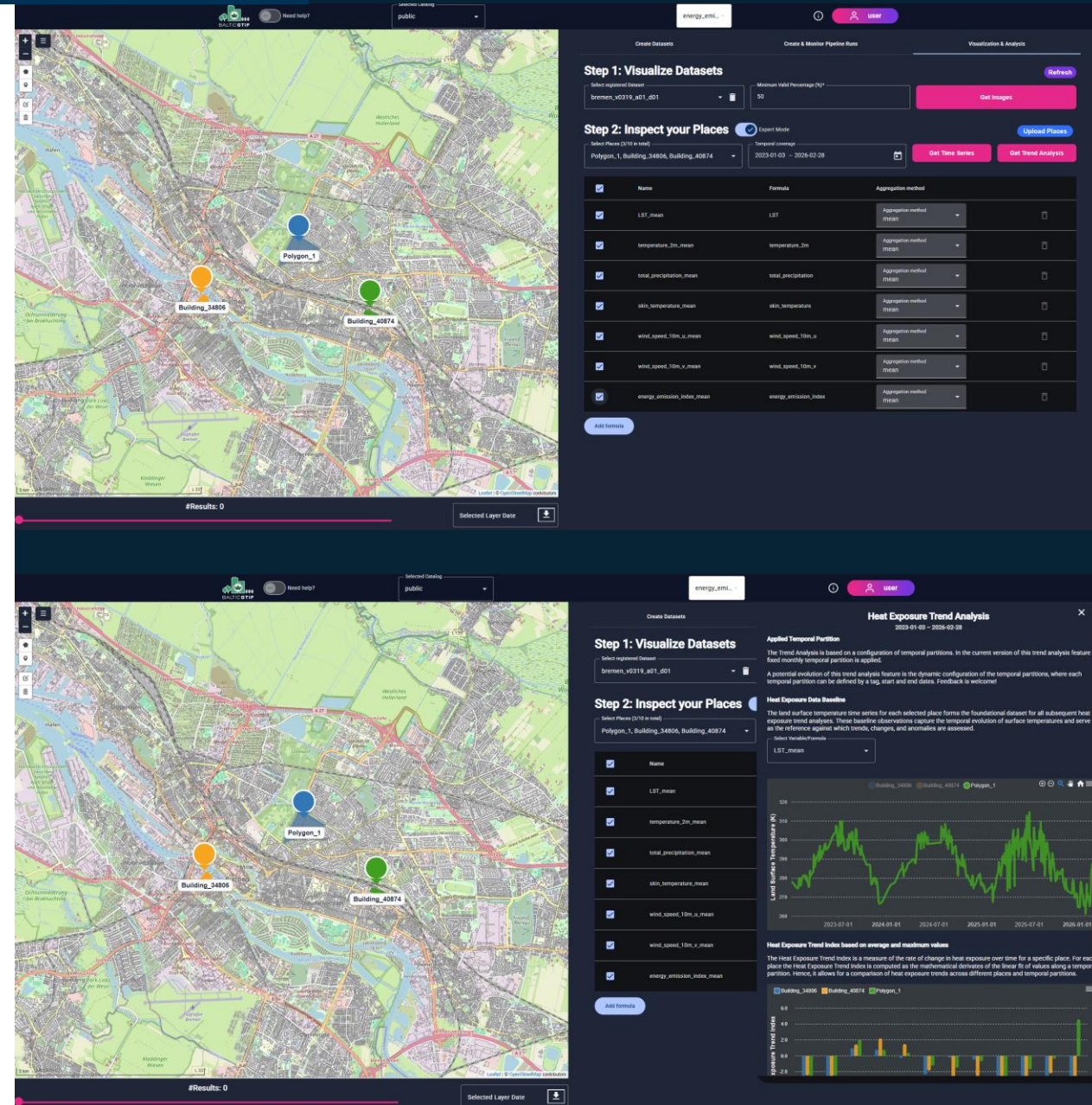
Key features:

- Use of Satellite and Climate Data for an Indicator-Based Assessment of Climatic Conditions
- Time-Series Comparisons for Analyzing Trends and Patterns
- Flexible analysis based on custom area definitions (polygons, building footprints)

Intended applications:

- Flexible use as objective and scalable data foundation for assessing climate trends at local level.

Your OHB Expert
Dr. Dietrich Kuhn



SUSTAINABLE FORESTRY

DIGITIZATION AND REMOTE SENSING

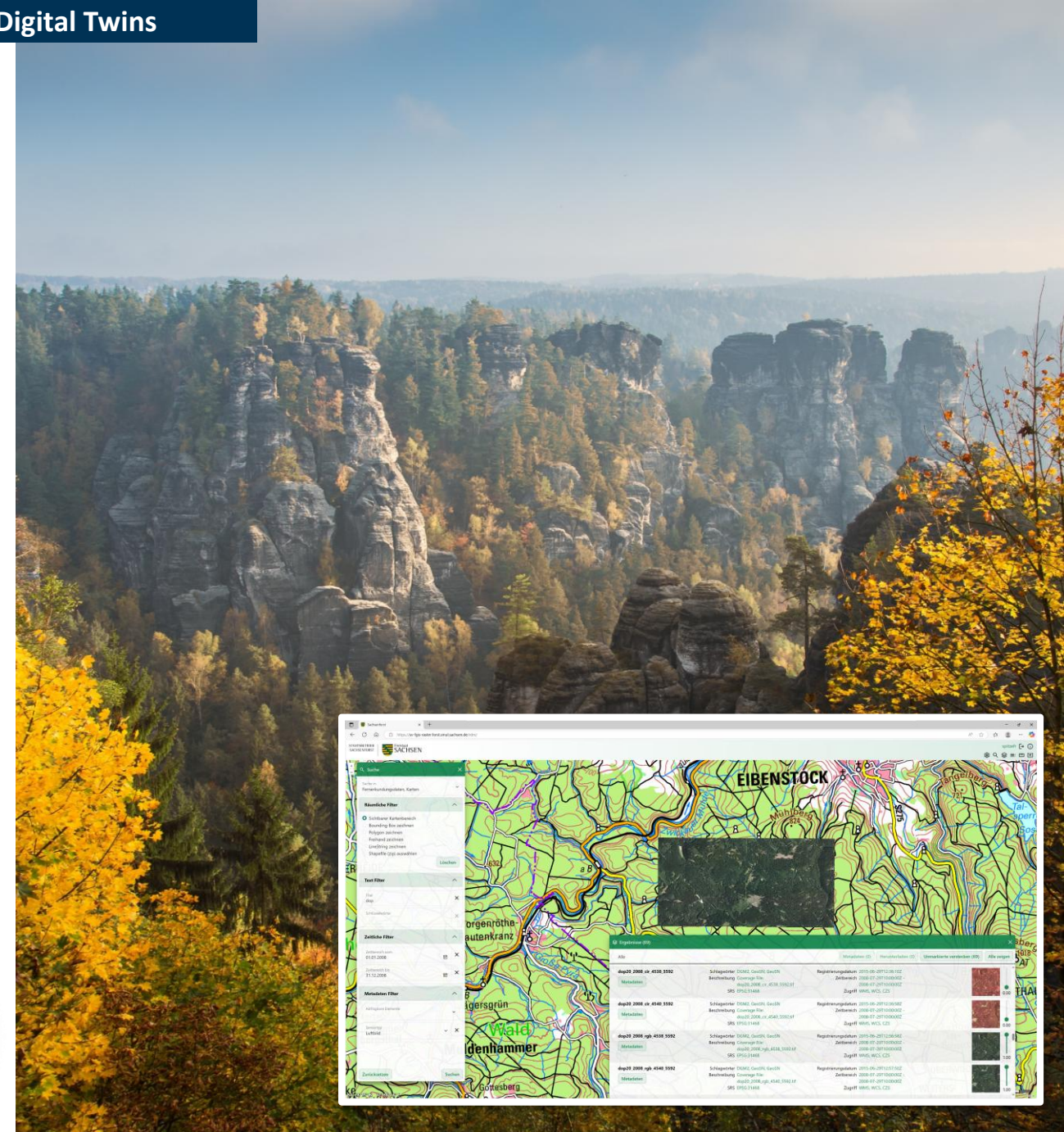
GEOSYSTEMS GmbH has established for Sachsenforst, the forestry enterprise of the Free State of Saxony, Germany, a centralized geospatial data infrastructure that significantly simplifies access to extensive forestry data holdings. Custom-developed web clients enable users to complete complex tasks more quickly and efficiently.

Outcomes:

- The available datasets include approximately 20,000 historical maps, some dating back to 1711, orthophotos dating back to 1953, current remote sensing and geospatial data and additional forestry information (documents, photo etc.)
- Modern intelligent data management system for planning, forest inventories, and environmental analyses.
- Users benefit from faster access to information, improved data quality, reduced metadata maintenance efforts, and more efficient workflows.



Your OHB Expert
Armin Hoff



04

MARITIME

COASTLINE MONITORING

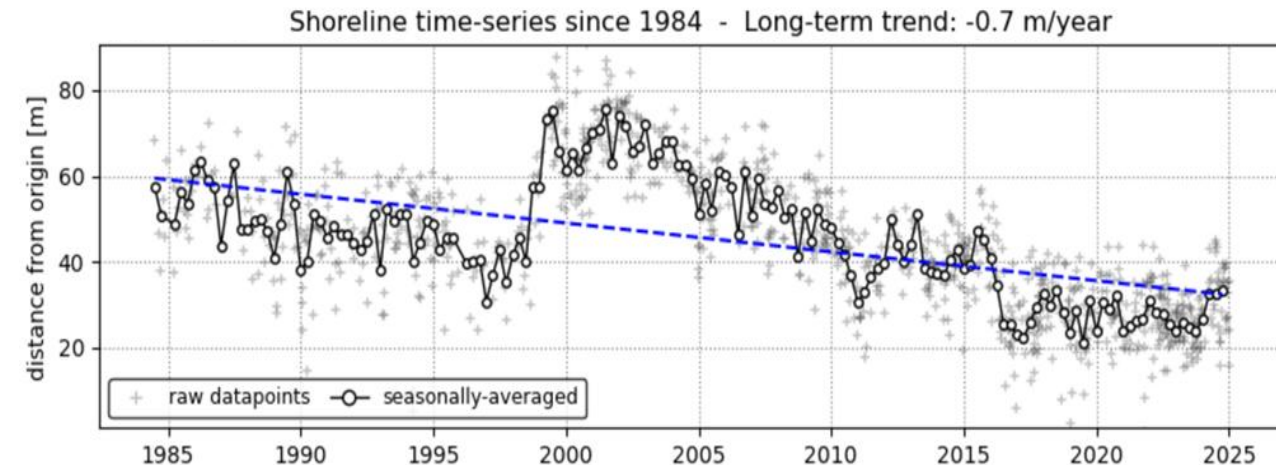
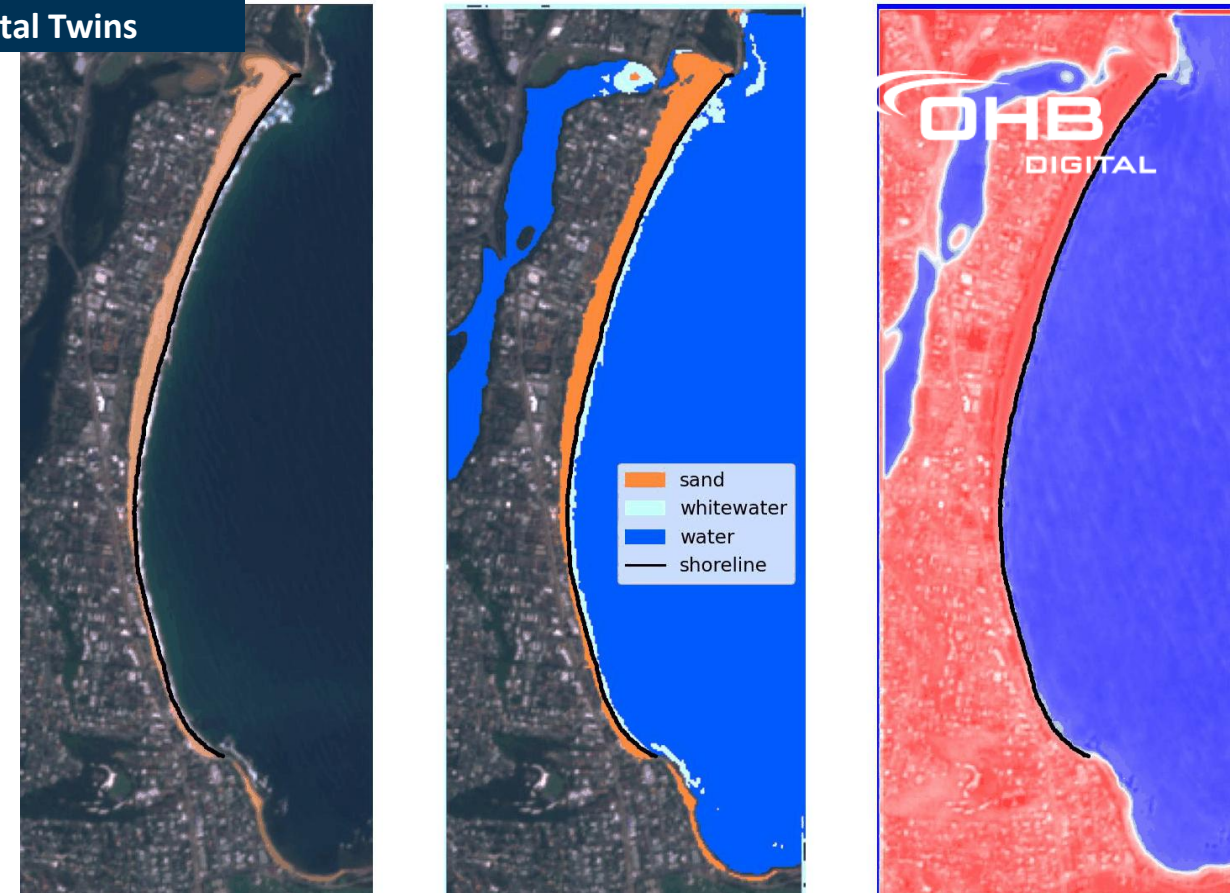
MONITORING COASTAL CHANGE FROM SPACE

The OCEANIDS project develops user-friendly services to assist regional authorities and harbours in marine spatial planning, climate adaptation and the implementation of a sustainable blue economy. Services for monitoring or forecasting purposes, risk assessment and decision support are made available in one platform.

- Project outcome:
 - Coastline change monitoring from satellite imagery
 - Insights into coastal dynamics from last 40 years of imagery

- Integrated data sources:
 - Landsat, Sentinel-2
 - Global tide models (FES2022)

Your OHB Expert
Dr. Kilian Vos



ORBITSAILOR

MONITORING OF WORLDWIDE VESSEL TRAFFIC

LuxSpace launched the first ever AIS (Automatic Identification System) receiver to space in 2009. Our AIS Data Service has been launched in 2011 and provides AIS data to customers around the world.

- Our **“OrbitSailor”** provides tracking and monitoring solutions for the maritime industry. We monitor more than 250 thousands vessels and is powered by more than 30 million positions reports each day
- Our **standardized products** provide information on position and performance of vessels around the globe
- Our **OrbitSailor Archive** provides historical AIS data which can fuel AI-based systems that can be used to optimize routes and fuel consumption as well as improve flow of goods
- **OrbitSailor Explorer** is an end-user easy-to-use interface, which is not overloaded with features and information

Your OHB Expert
Dr. Gerd Eiden



Global coverage



- All main traffic routes
- All regions
- High-update rate for port areas

>250 000 ships per day



- Data acquisition from almost all visible ships around the world
- Class A and B

Customized data delivery



- Preparing data according to the needs of customers
- Various delivery mechanisms, e.g.: TCP/IP, Push, SSL, JSON, FTP, API

Terrestrial, satellite, shipborne



- Terrestrial AIS receivers: rivers and coastlines
- Satellites with AIS receivers
- Shipborne AIS

Data analytics

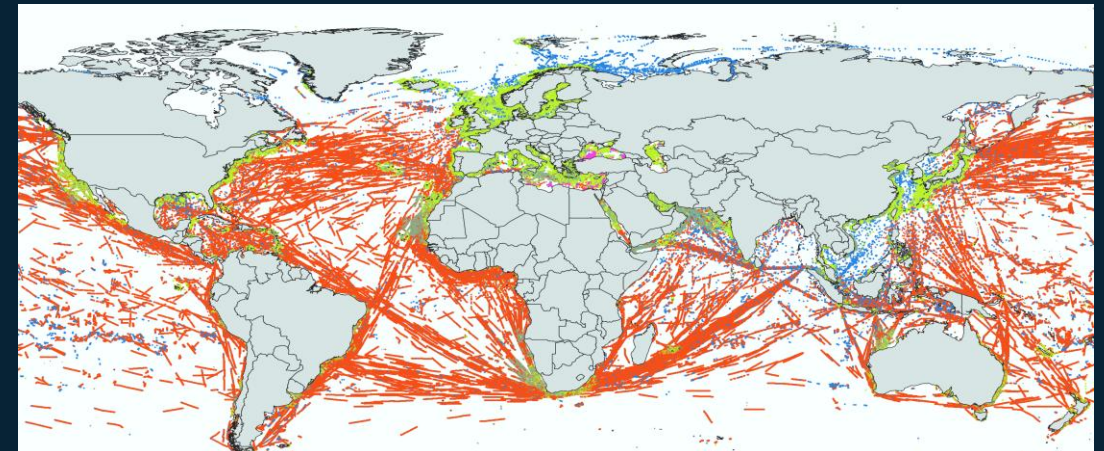


- Ship-2-ship
- AIS ON/OFF
- Sudden change of speed & course
- Loitering: individual and cluster
- ETA
- Transit of ship within forbidden areas

Near real-time



- Live stream of the latest data
- Providing data as quickly as it arrives to LuxSpace
- Real-time ships tracking



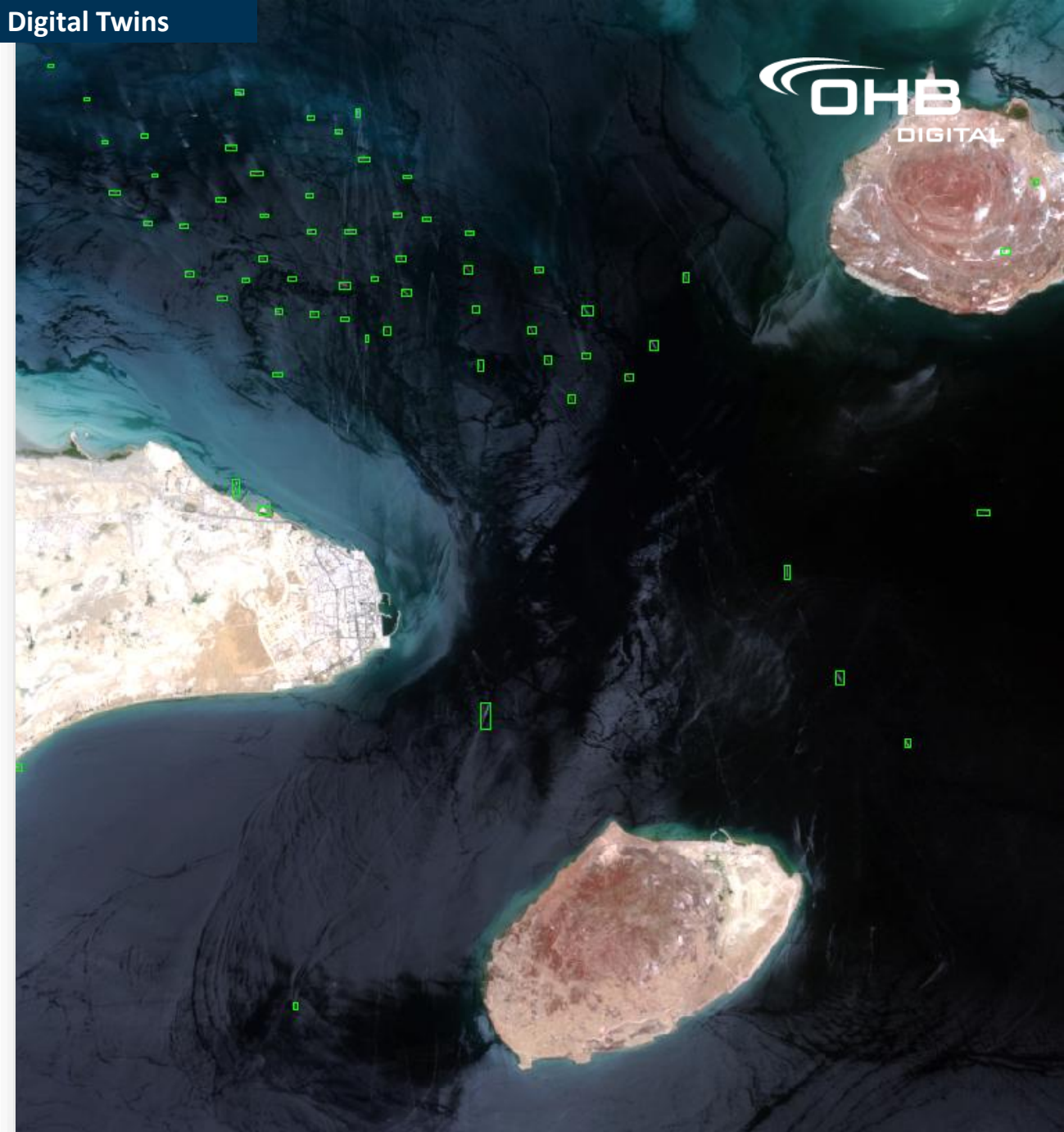
SHIP DETECTION

STREET OF HORMUZ, BALTIC SEA & SUEZ CHANNEL

Using 400 samples for training artificial intelligence algorithms to detect ships on Copernicus Sentinel data in various regions around the globe

- Project outcome:
 - Deep learning algorithms detect ships on open and free Sentinel data with a very high accuracy of ~95%
- Integrated data sources:
 - Satellite data, such as Copernicus Sentinel-2

Your OHB Expert
Eva Walter



05

AGRICULTURE

AGRICULTURAL MONITORING

MONITORING OF AGRI-ENVIRONMENTAL CONDITIONS

The ScaleAgData project aims at scaling agricultural sensor data for an improved monitoring of agri-environmental conditions by implementing solutions in 6 experiments.

- Laboratories:
Water productivity, Grassland, Soil health, Yield monitoring, Crop management, Sustain dairy
- Project outcome:
 - Fusion of meteorological datasets to seamless NRT time series
 - NRT time series forecasting of dairy-related parameters
- Integrated data sources:
 - ERA5-Land Reanalysis
 - ECMWF IFS/AIFS

Your OHB Expert
Joris Jaruschewski



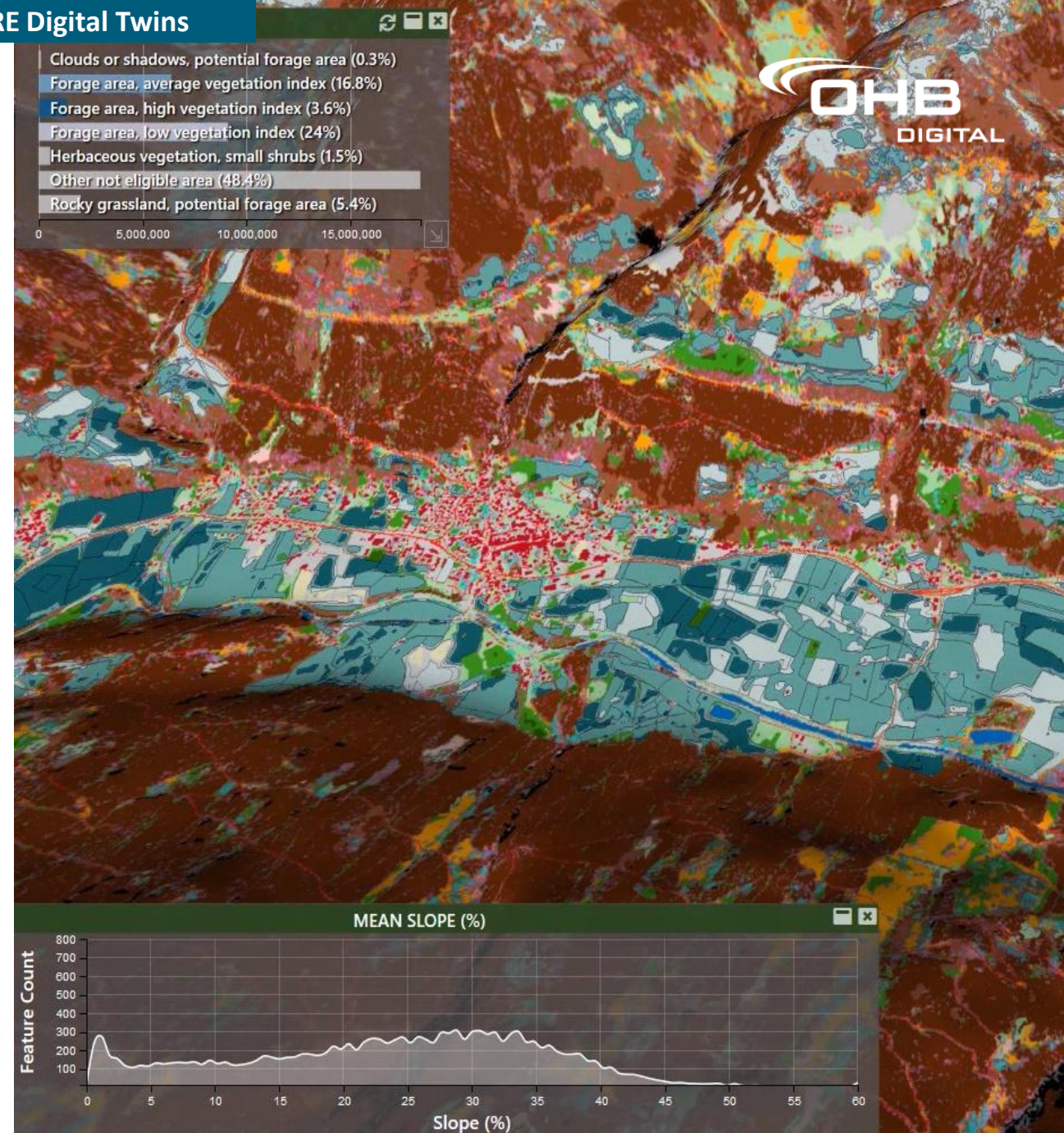
AGRICULTURAL FIELD CLASSIFICATION

AUTOMATED GEOPROCESSING FOR NATION-WIDE FORAGE AREAS

By developing suitable production chains, we have generated a highly automated process flow from raw satellite data to meaningful information for the paying agencies.

- Project outcome:
 - Automated pre-processing of Sentinel-2 data to generate an optimized and nationwide satellite mosaic of Austria
 - Classification of forage areas by a smart match of rules and machine learning algorithms
- Integrated data sources:
 - Satellite data, such as Copernicus Sentinel-2

Your OHB Expert
Armin Hoff



SMART FARMING

ESTIMATING YIELD POTENTIAL WITH COPERNICUS SENTINEL-2

The objective of the solution for KWS SAAT SE & Co. KGaA, one of the world's largest seed producer, is creating a new smart farming procedure to automate and to improve yield analysis, satellite image processing and data accessibility — ultimately maximizing crop yields.

Project outcome:

- Automated data preparation of Sentinel satellite data including atmospheric correction, cloud mask and mosaicking
- Automated calculation of yield potential maps from Sentinel-2 time series. The customer provides indices and algorithms
- Integration of results in KWS business processes and the service portal for farmers myKWS

Integrated data sources

- Copernicus Sentinel-2 data

Your OHB Expert
Armin Hoff



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WE UTILIZE SPACE TO FIND ANSWERS TO THE COMPLEX QUESTIONS OF OUR TIME.

DR. ARNE GAUSEPOHL

OH B DIGITAL

Tel.: +49 421 22095-32

Mail: arne.gausepohl@ohb.de

Web: www.ohb.de