

POLITIK | INNENPOLITIK

## Österreich: Land der Supermärkte und der Bodenversiegelung

Von nachrichten.at/apa, 11. September 2023, 14:44 Uhr

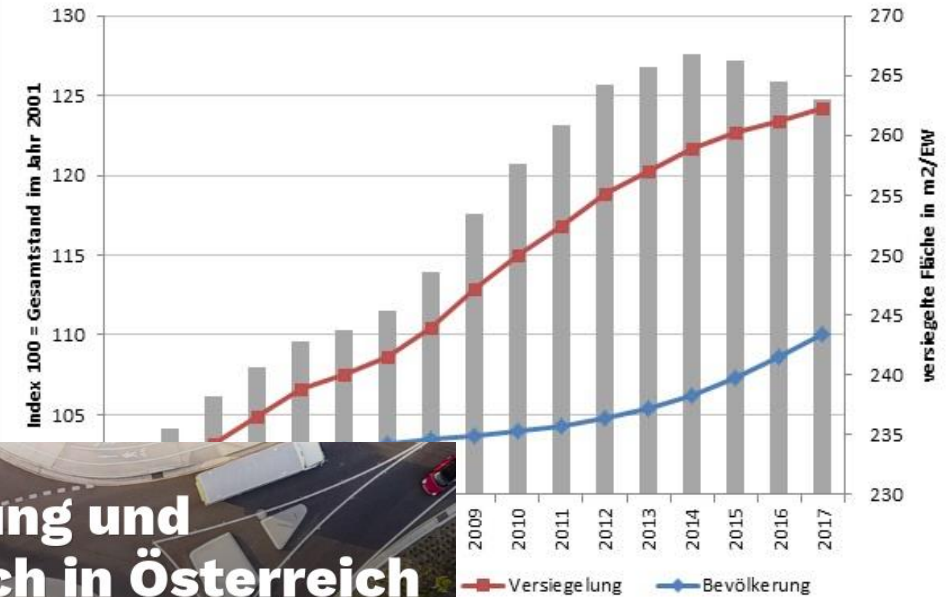
Natürlicher Boden

KLIMA, ERNÄHRUNG, SICHERHEIT

## Bodenversiegelung als Abwärtsspirale



Entwicklung der Versiegelung in Österreich



SN.AT / PANORAMA / WISSEN

## Bodenverbrauch in Europa - Österreich führt die Liste an!

von  
HERWIG  
STEINKELLNER

Dienstag  
21. August 2018

In den letzten zwei Jahren wurden in Österreich täglich 12,9 Hektar Boden neu verbaut. Dieser Flächenverbrauch ist laut Expertenmeinung eindeutig zu hoch.

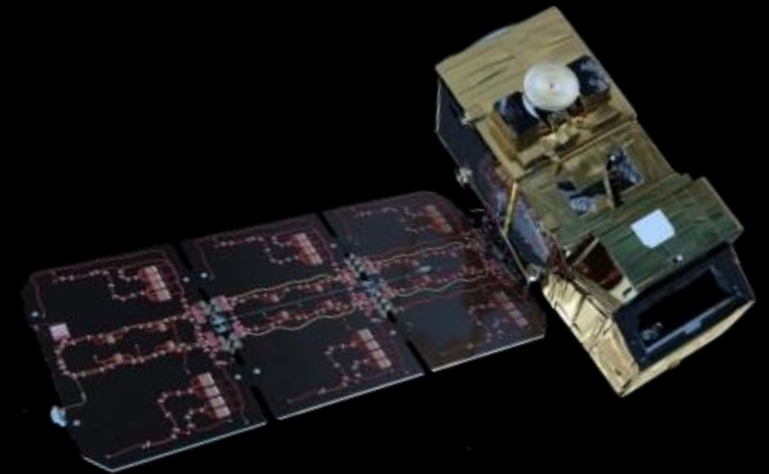
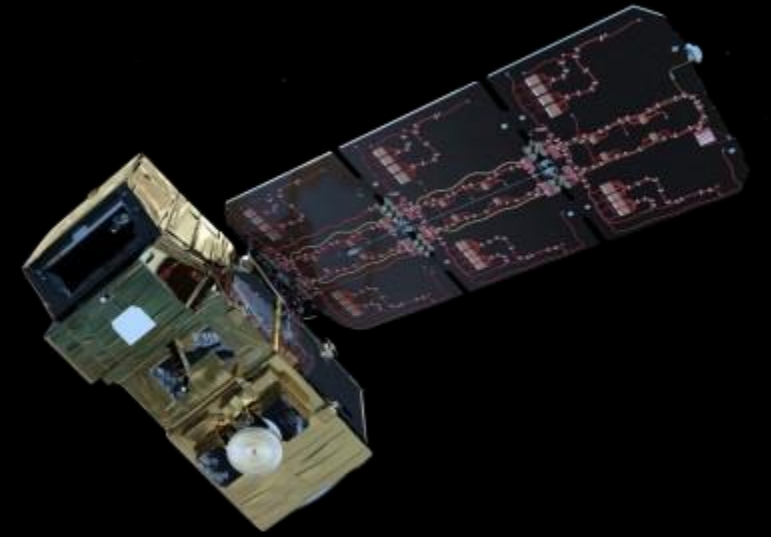
ing und  
ch in Österreich  
che Ausmaße an

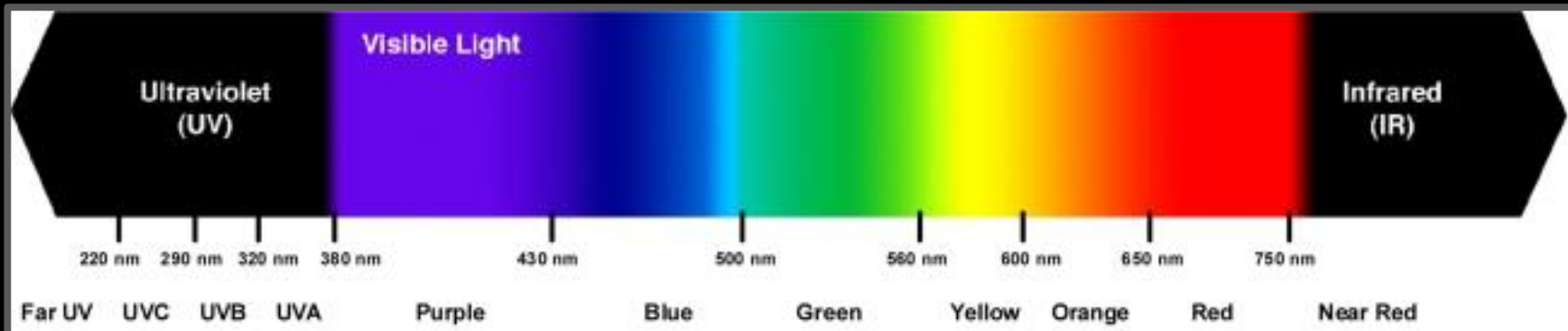
# Was ist das Problem?

Keine automatisierte  
Datenerhebung!

# Sentinel II

- Open Source
- Häufige Neuaufnahmen
- Hohe Auflösung

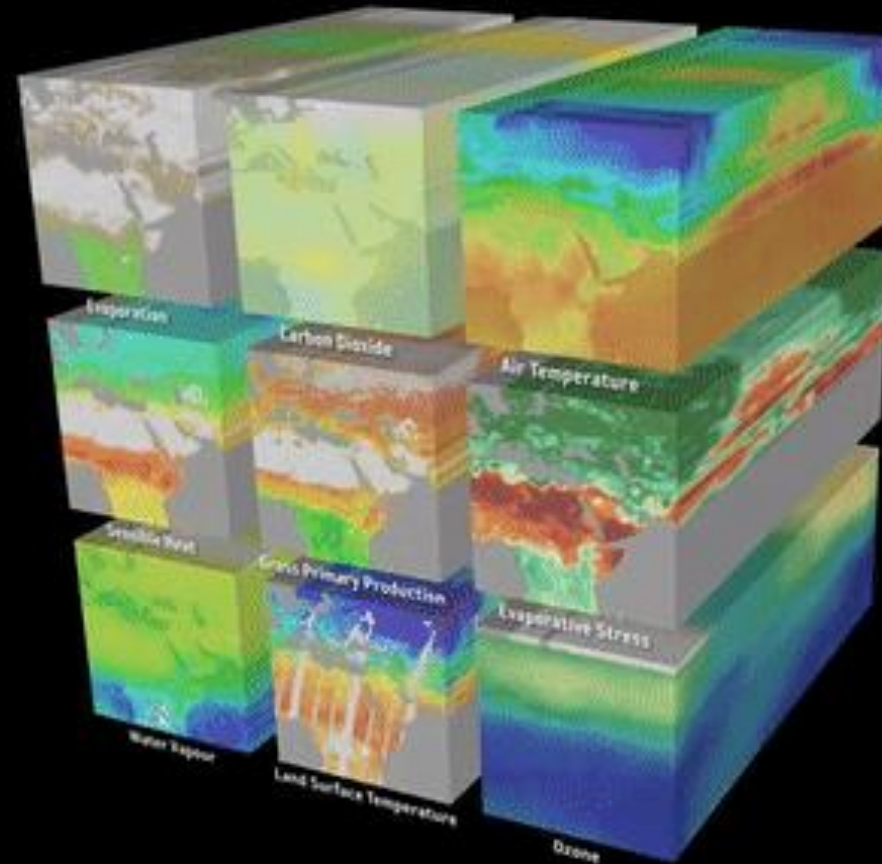




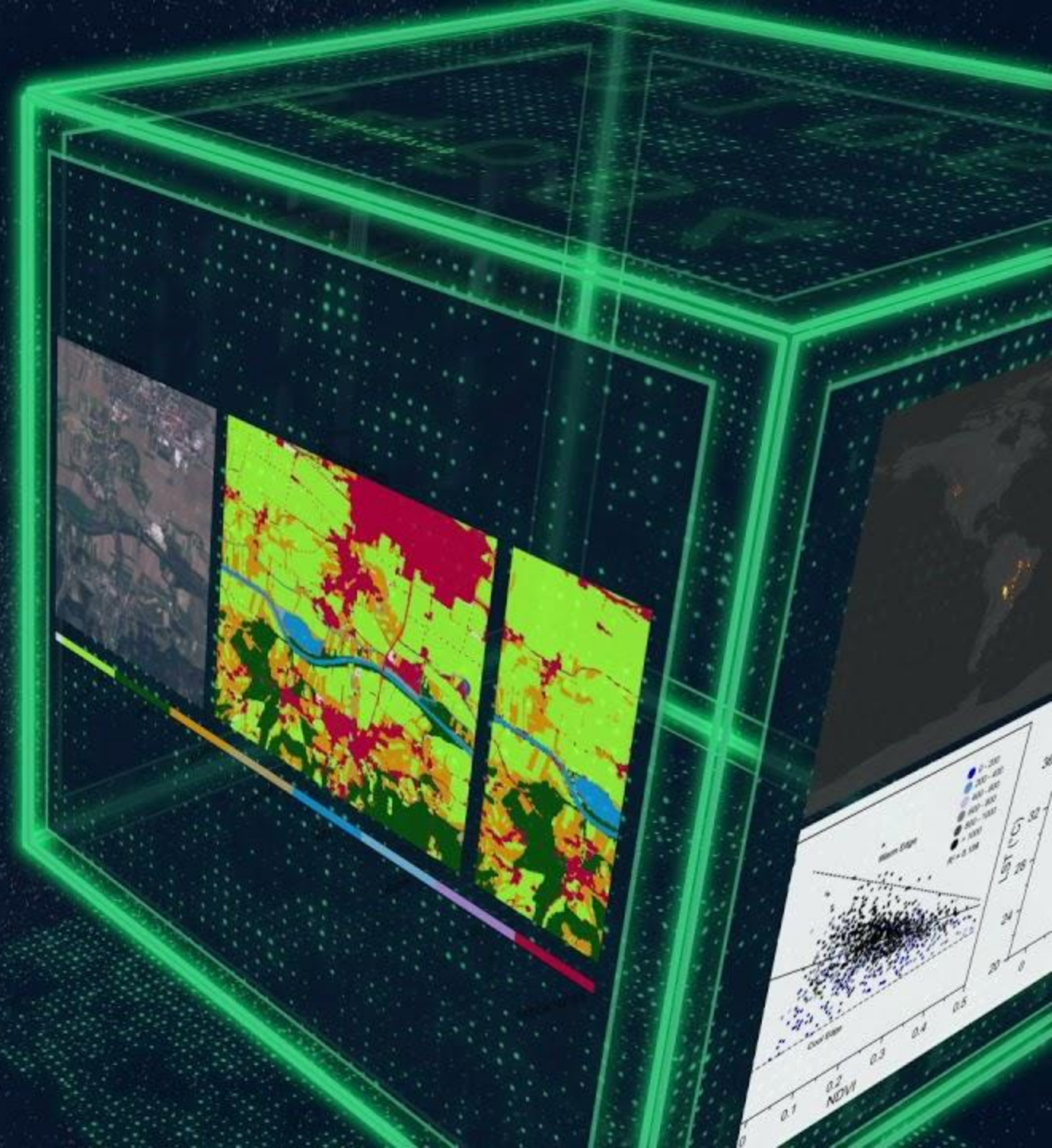
Band Name	Wavelength	Band Name	Wavelength
Vac UV	178 nm ~ 190 nm	Blue	430 nm ~ 500 nm
Far UV	190 nm ~ 220 nm	Green	500 nm ~ 560 nm
UVC	220 nm ~ 290 nm	Yellow	560 nm ~ 600 nm
UVB	290 nm ~ 320 nm	Orange	600 nm ~ 650 nm
UVA	320 nm ~ 380 nm	Red	650 nm ~ 750 nm
Purple	380 nm ~ 430 nm	Near IR	750 nm ~ 878 nm

# Komplexität von Satellitendaten

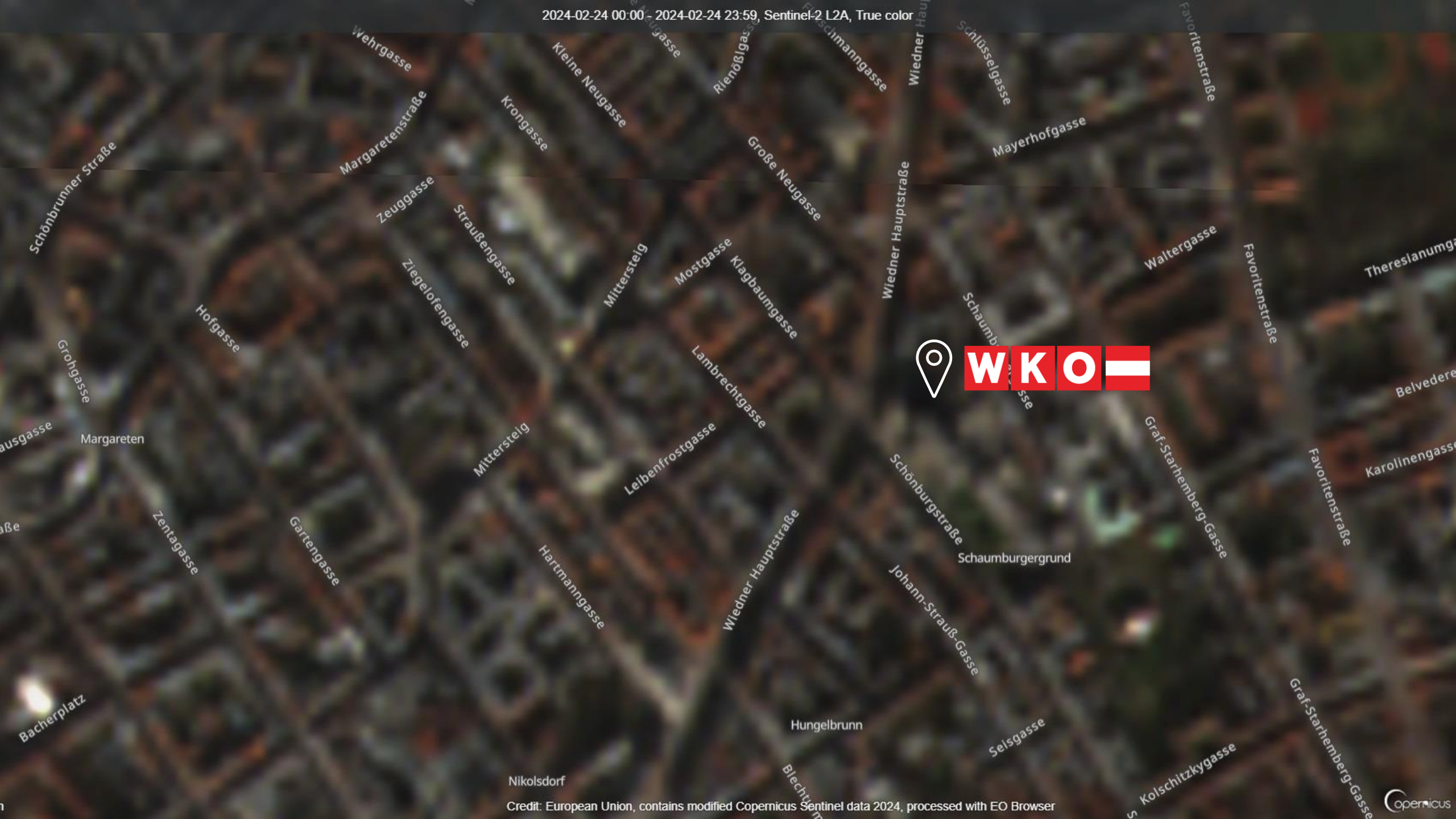
- Viele Dimensionen
- Metadaten: Ort & Zeit
- Datacubes



# EURO DATA CUBE



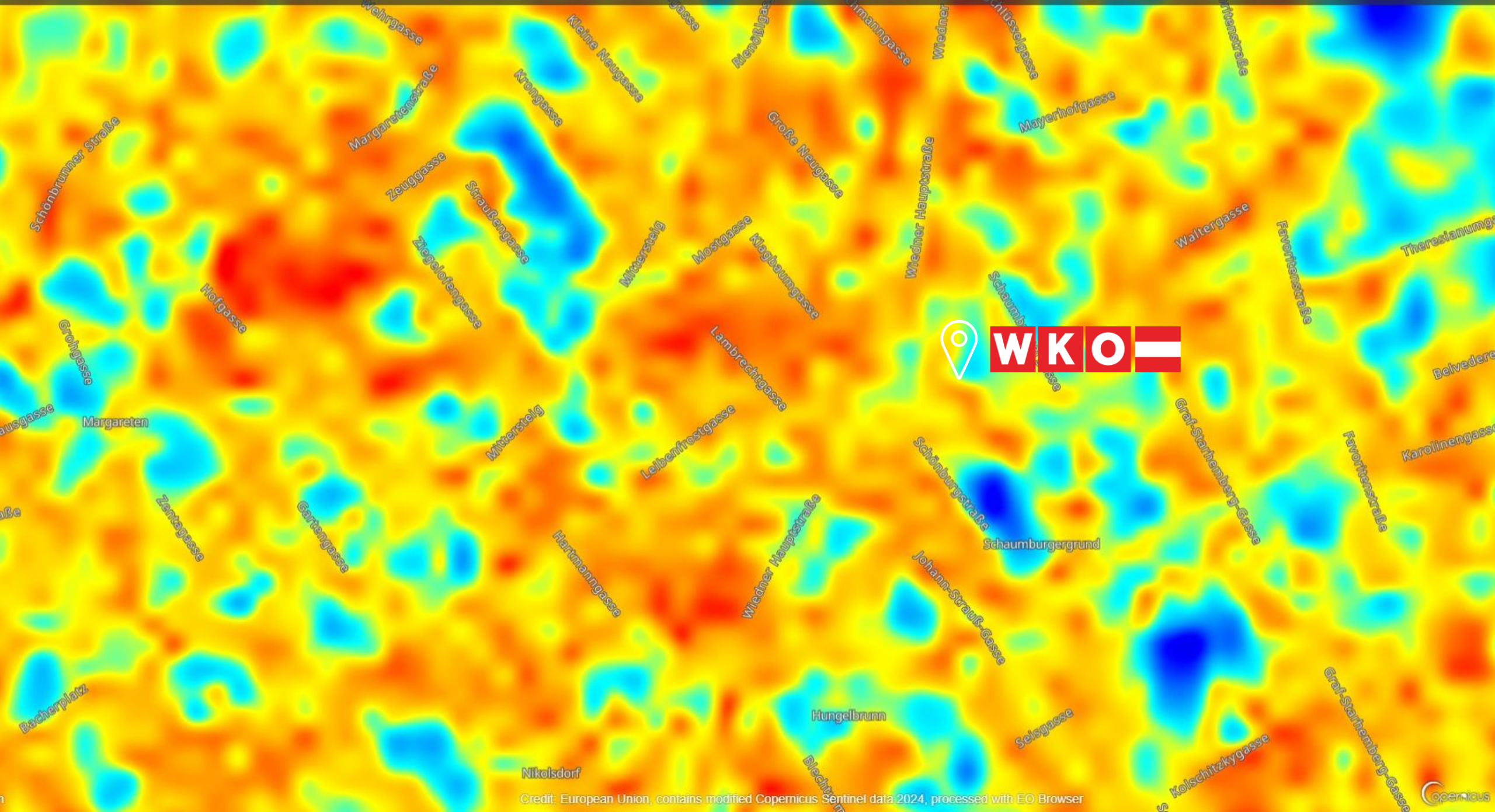








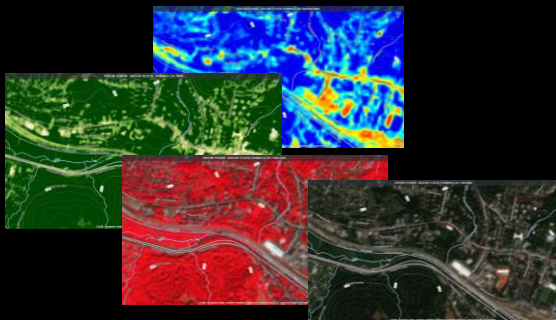




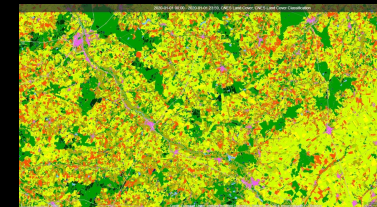
# KI: Segmentation Algorithmen

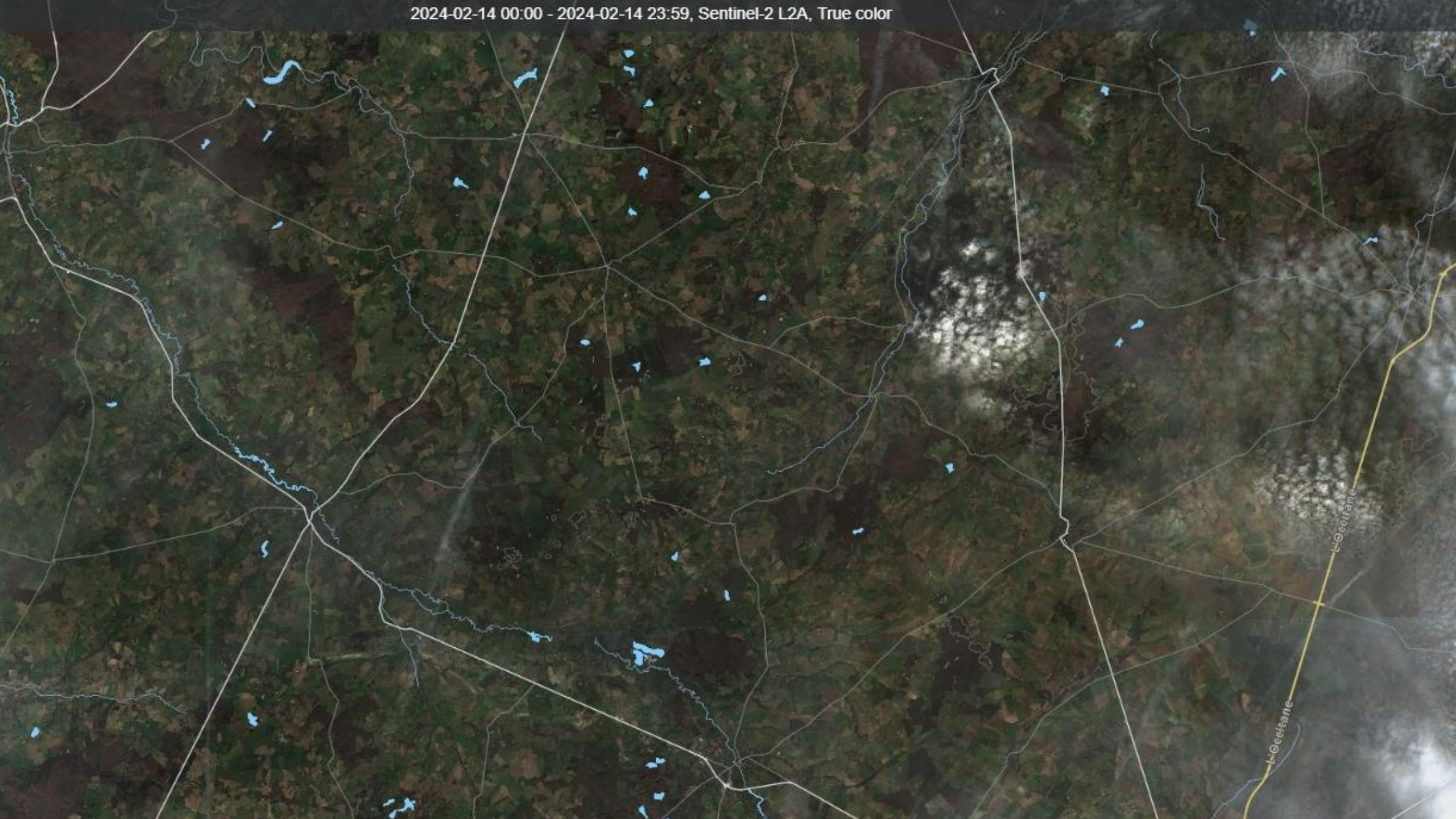


Sentinel II Data



Land Cover Map







**Von welchen Beispiel-Daten  
lernt unsere KI?**

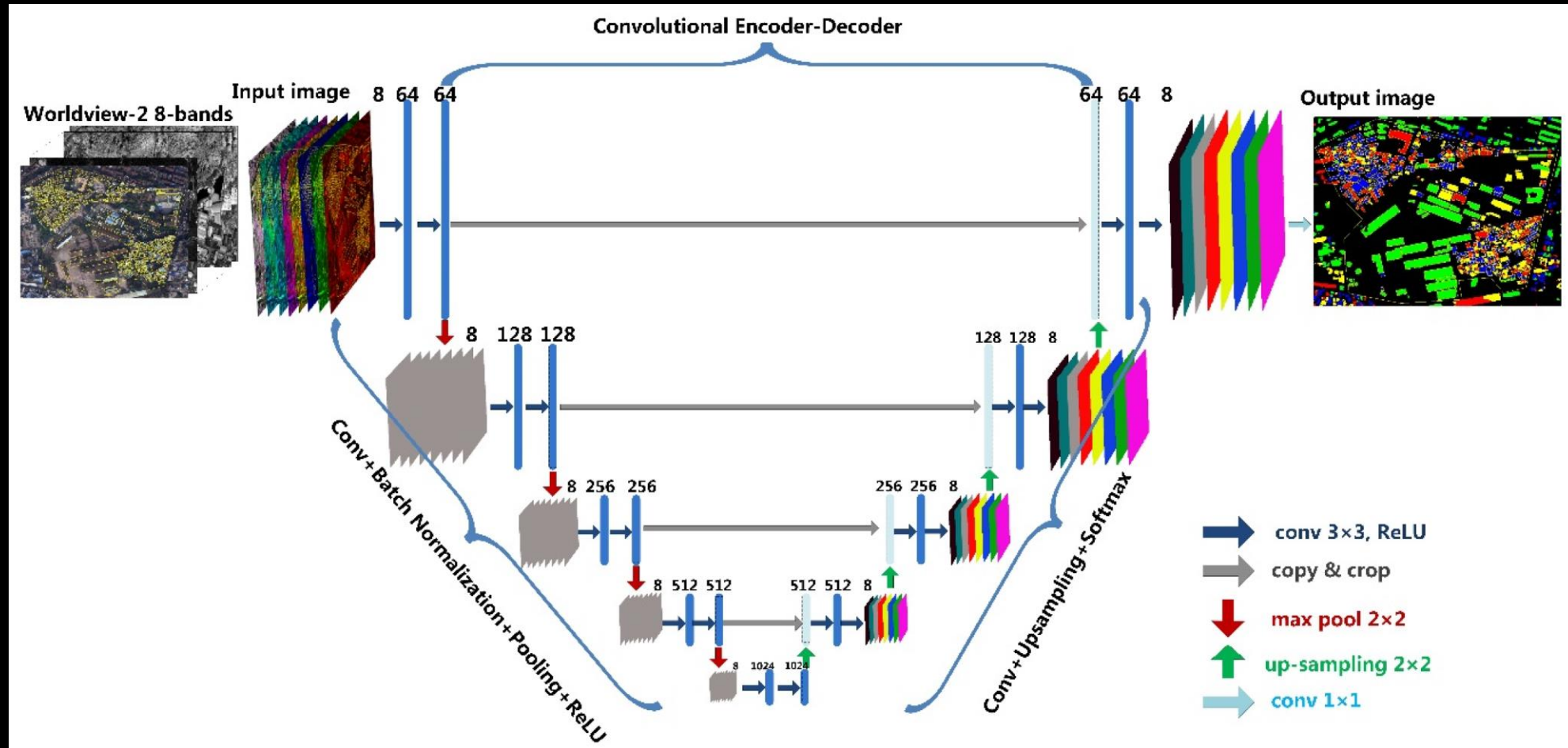
# Open Street Map (OSM)

- Globale Community
- Open-Source
- Viele Challenges





# Soil Sealing Detection

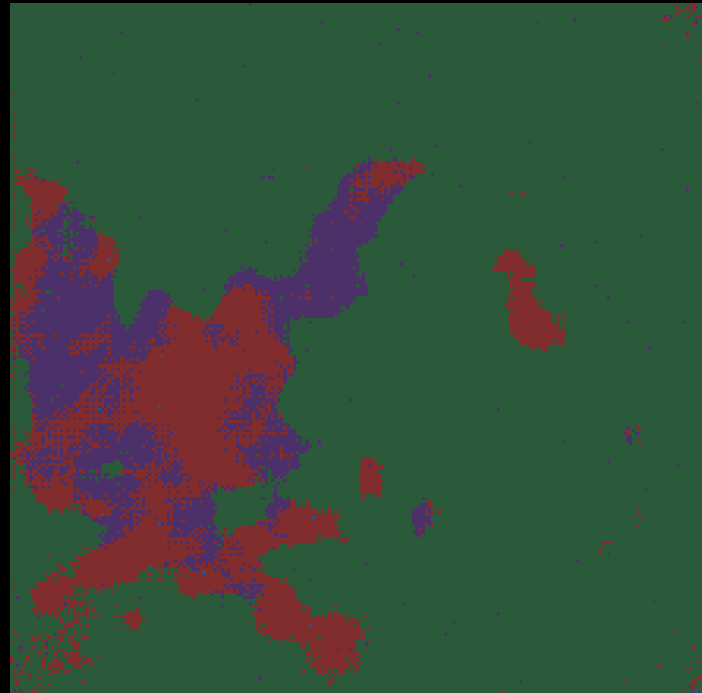


# Our Results

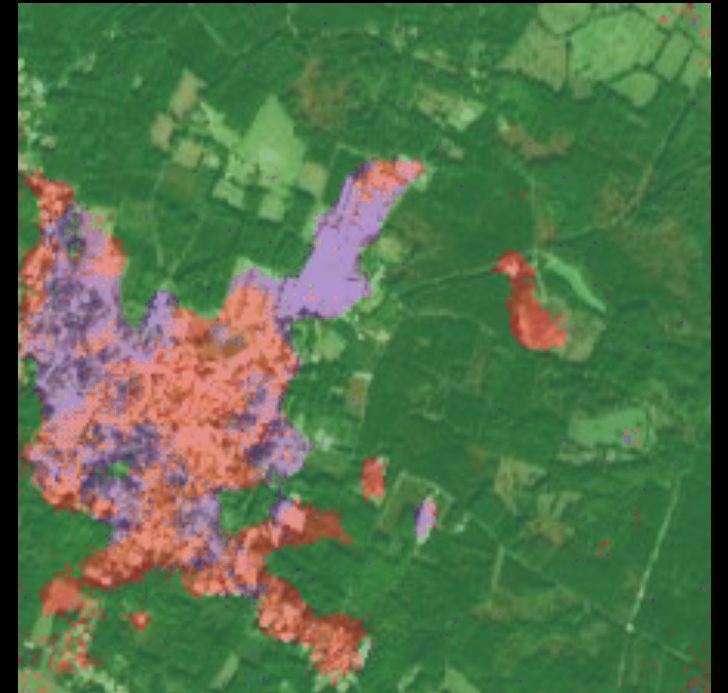
Sentinel-2



Predicted Map



Overlay



## GREEN TRANSITION DOMAINS



ENERGY  
TRANSITION



MOBILITY  
TRANSITION



SUSTAINABLE  
CITIES



CARBON  
ACCOUNTING



EO ADAPTATION  
SERVICES

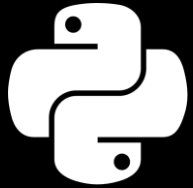
# GTIF – Green Transition Information Factory

# Expected Output

The screenshot displays the EODASH web application interface. At the top, it identifies the user as 'THE EUROPEAN SPACE AGENCY' and the current project as 'GTIF | Green Transition Information Factory > Carbon Accounting'. The main map shows a satellite view of Vienna, Austria, with a green forest mask overlaid. The mask covers most of the urban and surrounding areas, with some gaps. A data box on the map indicates a total area of 16,450, 48,036. The interface includes a sidebar on the left with 'DOMAINS & TOOLS' (Carbon Accounting, Energy Transition, EO Adaptation Services, Mobility Transition, Sustainable Cities) and 'Tools' (Biomass Tools, Above Ground Biomass, Annual forest mask, Forest change detections, Forest disturbance type). An 'INFORMATION' panel on the right provides a disclaimer: 'The forest mask classification output is based on a limited amount of training data, which is unlikely to represent all possible phenological conditions or forest structure types. This prototype is not validated and should therefore be considered as an example of the type of product which could be created based on the implemented methodology and training data available so far.' The bottom of the screen shows 'EDC service for ESA | Legal | Privacy' and 'eodash v4.0 by EOx FEEDBACK'.

# Technologies

## Development



Python



STAC

## Environment

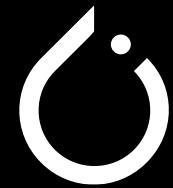


Weights & Biases



CUDA

## Machine Learning



PyTorch



PyTorch Lightning

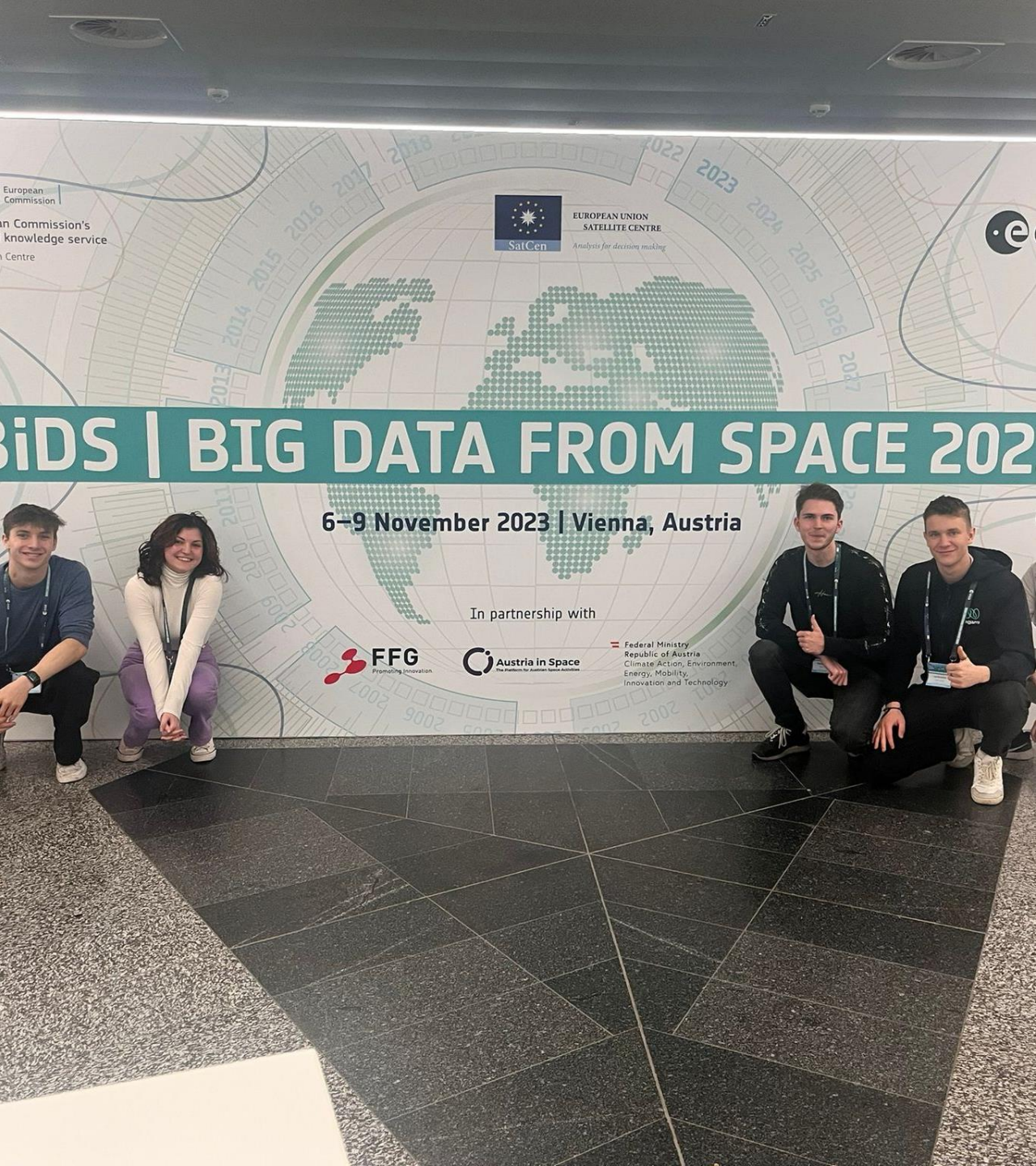
# Unsere Vision

- Bodenversiegelung erkennen
- Entscheidungsträger informieren
- Unverantwortliches Versiegeln verhindern
- Open-Source

# EOX IT Services GmbH

- Geospatial Engineering company
- ESA contractor
- Open-Source







# The Crew



Lilia Gerber

Luis Kalckstein

Maximilian Wolf



Tobias Lendl

Dominik Fluch

# Environment

## Project Environment



Harald Zumpf  
Supervisor



Stephan Meißl  
Partner



Týna Doležalová  
Partner



Oliver Sommer  
Consultant

## Team

