

GEO-DATA  
for  
BETTER  
DECISIONS





**> 140 highly  
skilled staff in  
10 offices  
across Europe**



**Integration of Data  
from  
AIRBORNE  
and  
SPACEBORNE sources**



**Strong  
cooperation  
with  
Esri,  
world leader in GIS**



**Sustainable expansion  
and growth:  
~ 20 mio € turnover / year**



# Eurosense 55 – History (1/2)



60's: First plane for aerial surveying



80's: 1st satellite map of Belgium



80's: Distribution of esri GIS-software

70's: Color and IR photography



80's: EUDICORT



# Eurosense 55 - History



80's: BEASAC



00's: Nation-wide orthophoto coverages



10's: Nation-wide LiDAR coverage

90's: Geographic expansion to Central Europe



00's: Thermography



2019: State of the art sensors





# Eurosense 55 - International network



Founding member and in the board of:

➤ **EAASI** – European Association of Aerial Surveying Industries – founded in June 2019  
Common actions towards stakeholders e.g.:  
**air traffic control** – civilian and military

➤ **EARSC** – European Association of Remote Sensing Companies – Board Meetings at ESA  
Common actions on the promotion of  
**Copernicus** program and down stream activities





# Eurosense 55 - Airports





# Eurosense 55 - Obstacle mapping



## Mapping objects above the clearway





# Eurosense 55 - Aircrafts



4 twin-engine survey aircrafts



# Eurosense 55 – Photogrammetric cameras



- VEXCEL X
- VEXCEL Xp
- VEXCEL Xp
- VEXCEL: UltraCam Eagle Mark 3  
Large Format Camera (2019)





# Eurosense 55 – LiDAR scanners



RIEGL VQ-1560 II LiDAR



Phase One camera



# Eurosense 55 – Examples and applications



- ✈ Land use / land cover maps
- ✈ Tree health and rooftop insulation monitoring
- ✈ Orthophotos for agricultural evaluation
- ✈ 3D city model
- ✈ Flood risk assessment
- ✈ Coastal monitoring



# Eurosense 55 – Telecommunication: Land cover / land use maps + elevation



Land cover / land use map



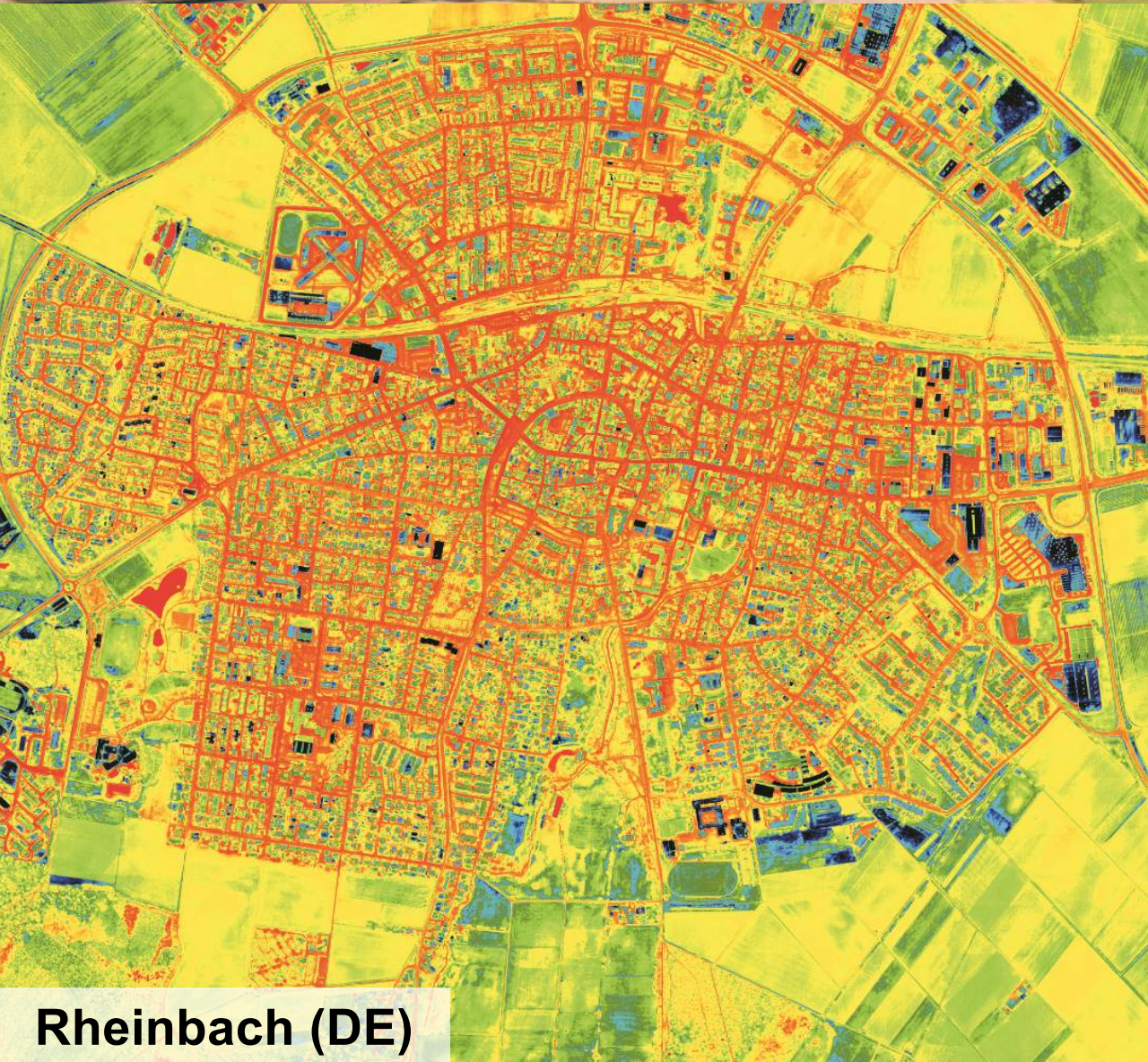
# Eurosense 55 – Environment: Tree health status



**Brussels (BE) – 10 cm GSD (2019)**



# Eurosense 55 – Environment: Rooftop insulation



Rheinbach (DE)

<https://klimaatneutraal.mechelen.be/warmteluchtfoto-kaart>

MECHELEN KLIMAATNEUTRAAL

STAD MECHELEN

GEBOUW

GROENE ENERGIE

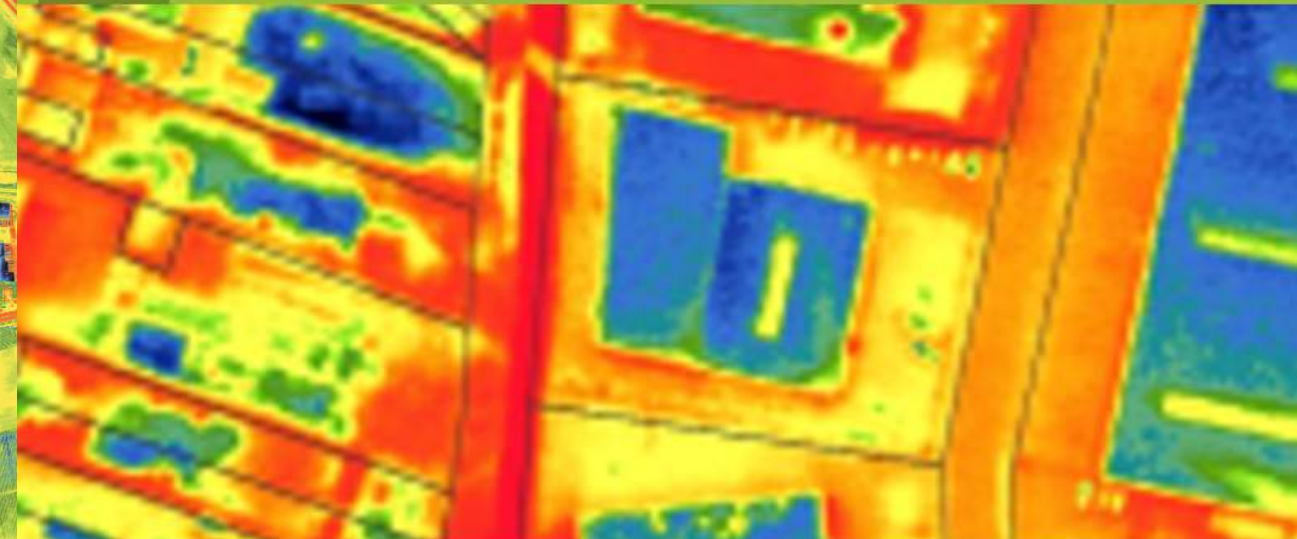
MOBILITEIT

SAMENAANKOPEN

LENING EN PREMIES

KLIMAATNEUTRAAL

CONTA



## Warmteluchtfoto Mechelen

[Home](#) > [Gebouw](#) > [Tools & advies](#) > [Warmteluchtfoto Mechelen](#)



**Interreg**  
Vlaanderen-Nederland  
Europees Fonds voor Regionale Ontwikkeling





# Eurosense 55 – Agriculture

## Parcel delineation with orthophotos



Update of  
cadastral  
information

Creation and  
update of Land  
Parcel  
Identification  
System (LPIS)  
database



Resolution:  
From 50 cm to 20  
cm

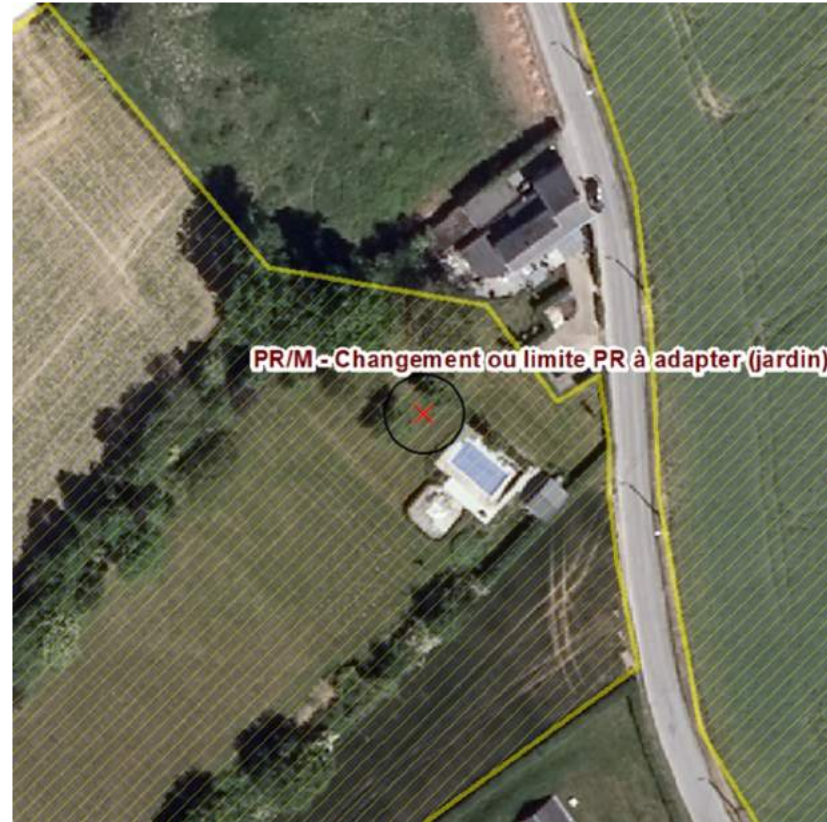
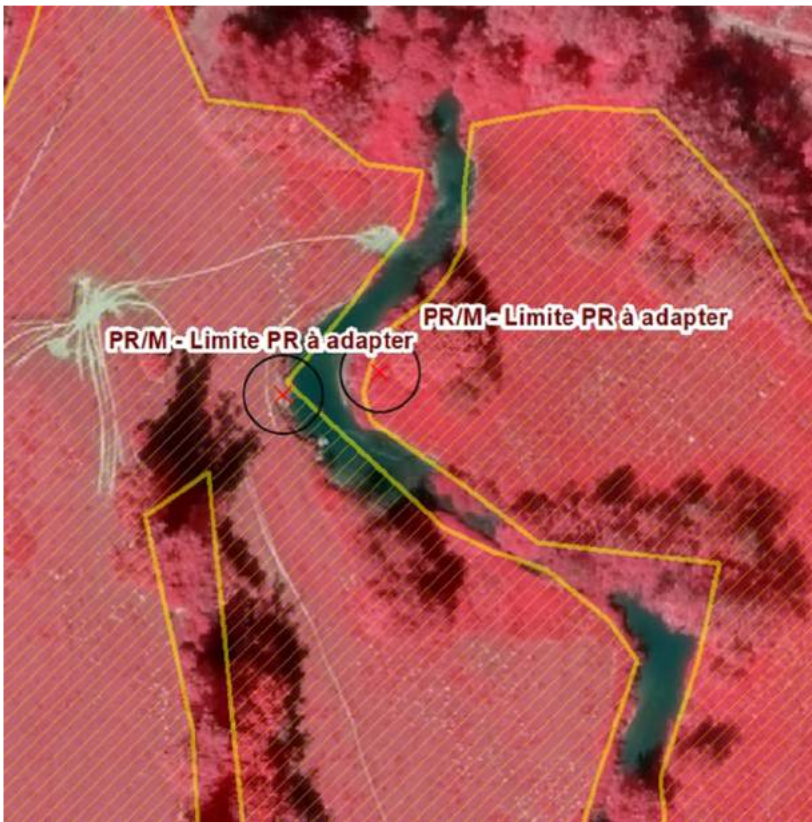
Typical update  
cycle of 1 to 5  
years



# Eurosense 55 – Agriculture Orthophotos



## Common Agriculture Policy (CAP) control





# Eurosense 55

## City mapping: Brussels capital region



Brussels- Montgomery (BE) – 5cm GSD (2018)



Eurosense 55

3D City modeling: Namur



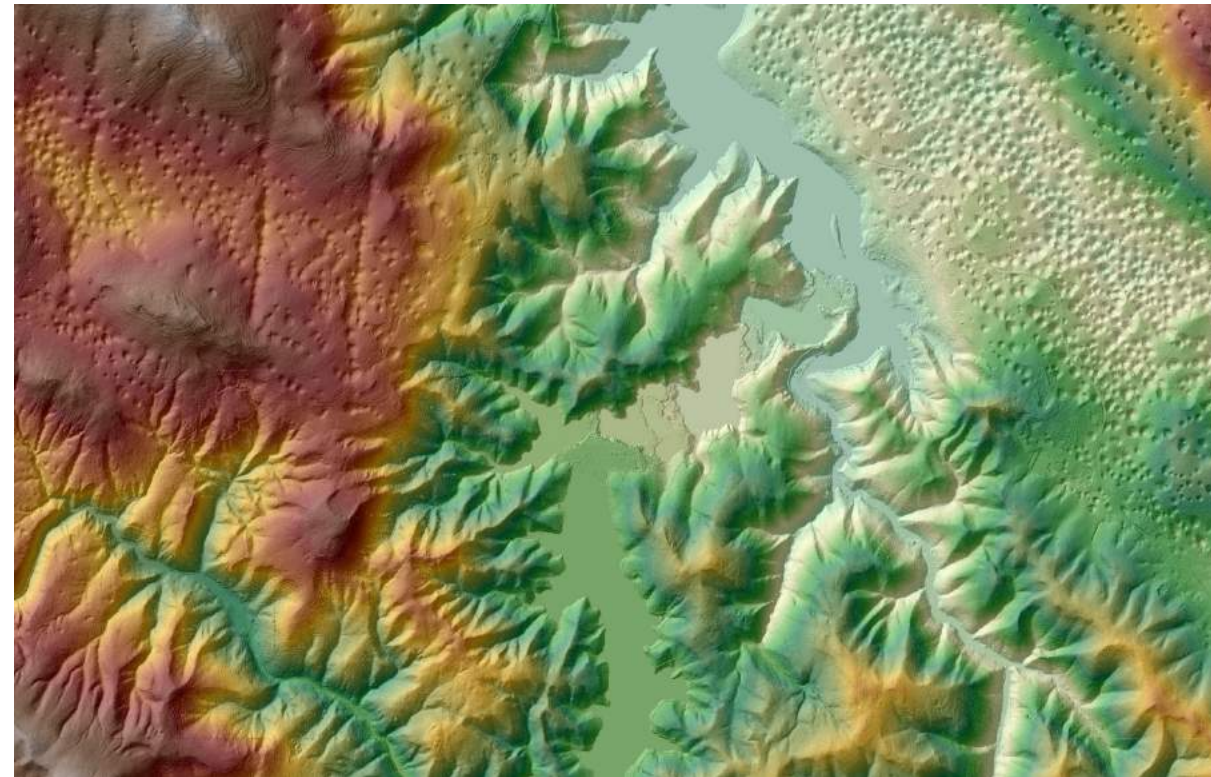
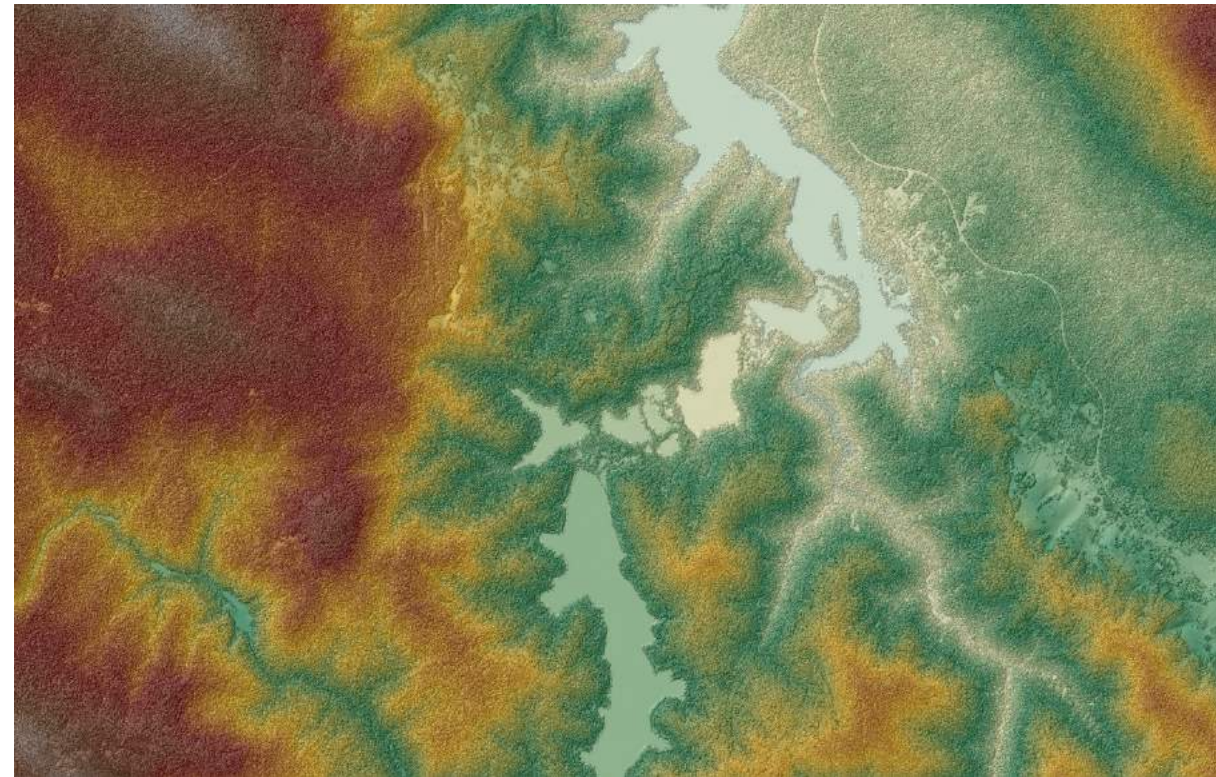


# Eurosense 55 – Flood risk assessment





# Eurosense 55 – DSM/DTM

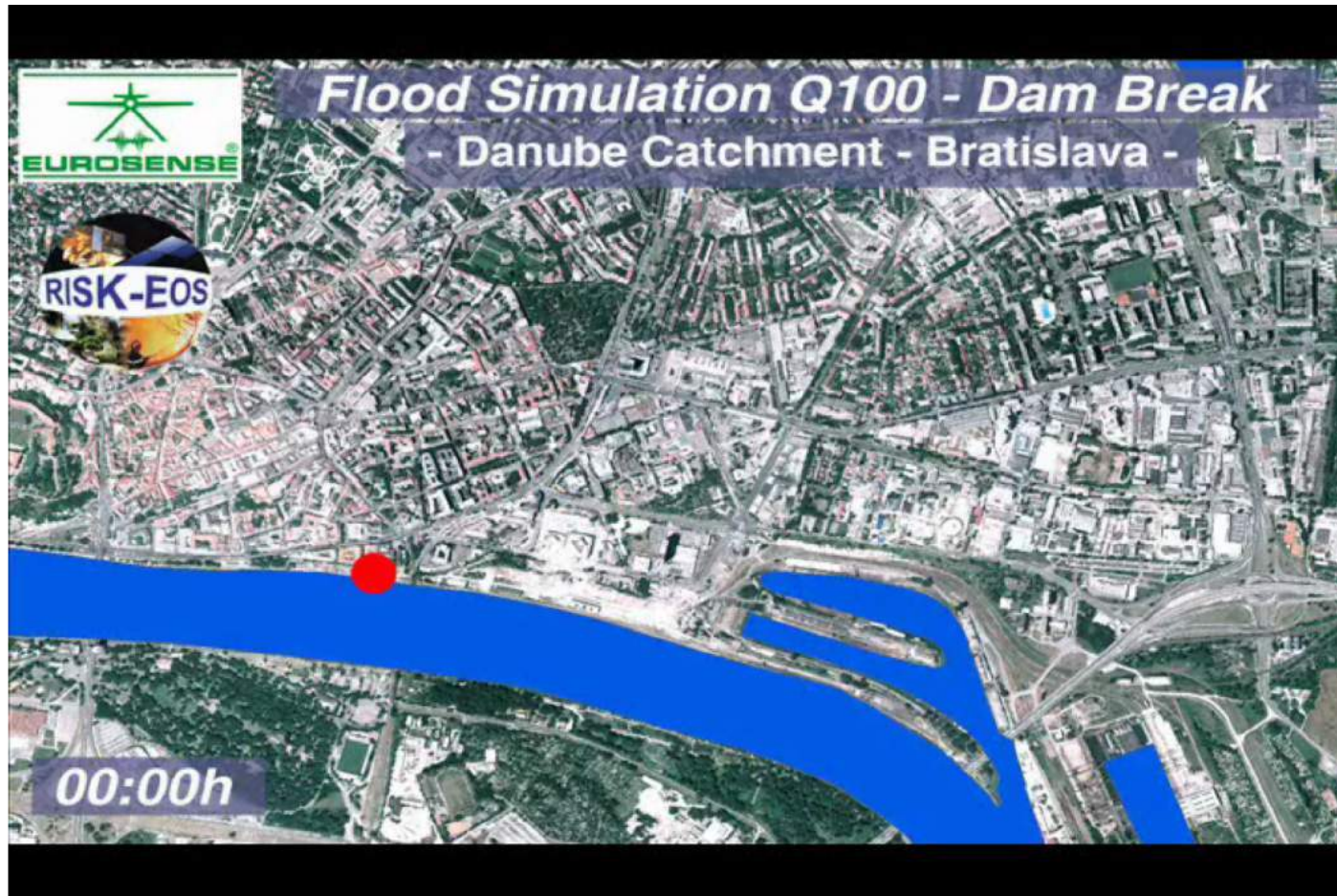


*Digital Surface Model (DSM)*

*Digital Terrain Model (DTM)*



# Eurosense 55 – Floods: DTM and flood risk maps





# Eurosense 55 – Floods: The use of LiDAR



Passau, 2013

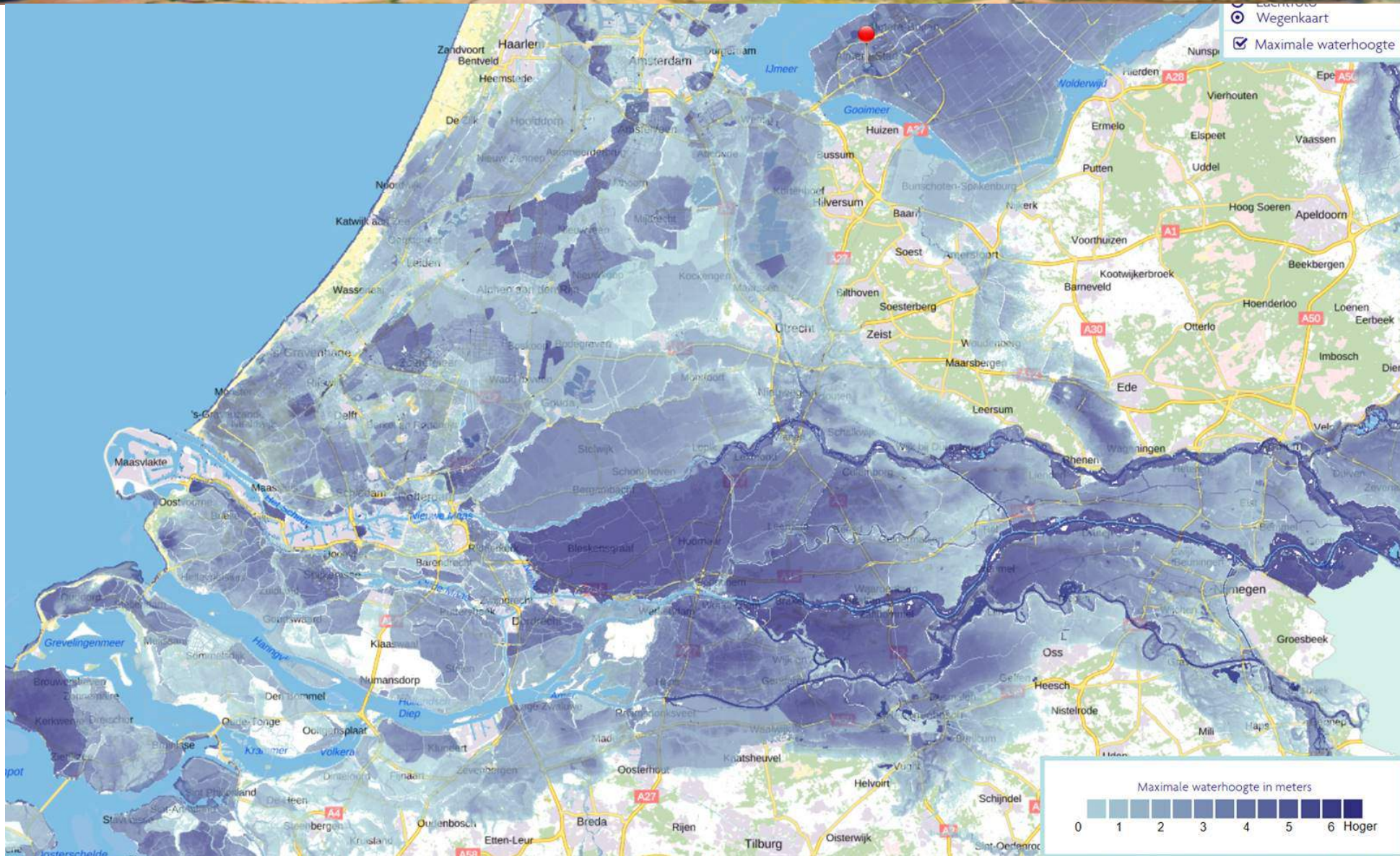


# Eurosense 55 – Flood risk assessment: DTM of Groningen (NL)





# Eurosense 55 – Flood risk assessment: DTM of Groningen (NL)





# Eurosense 55 – Floods

## Nature-based solutions (NBS)



### Research in applications of NBS

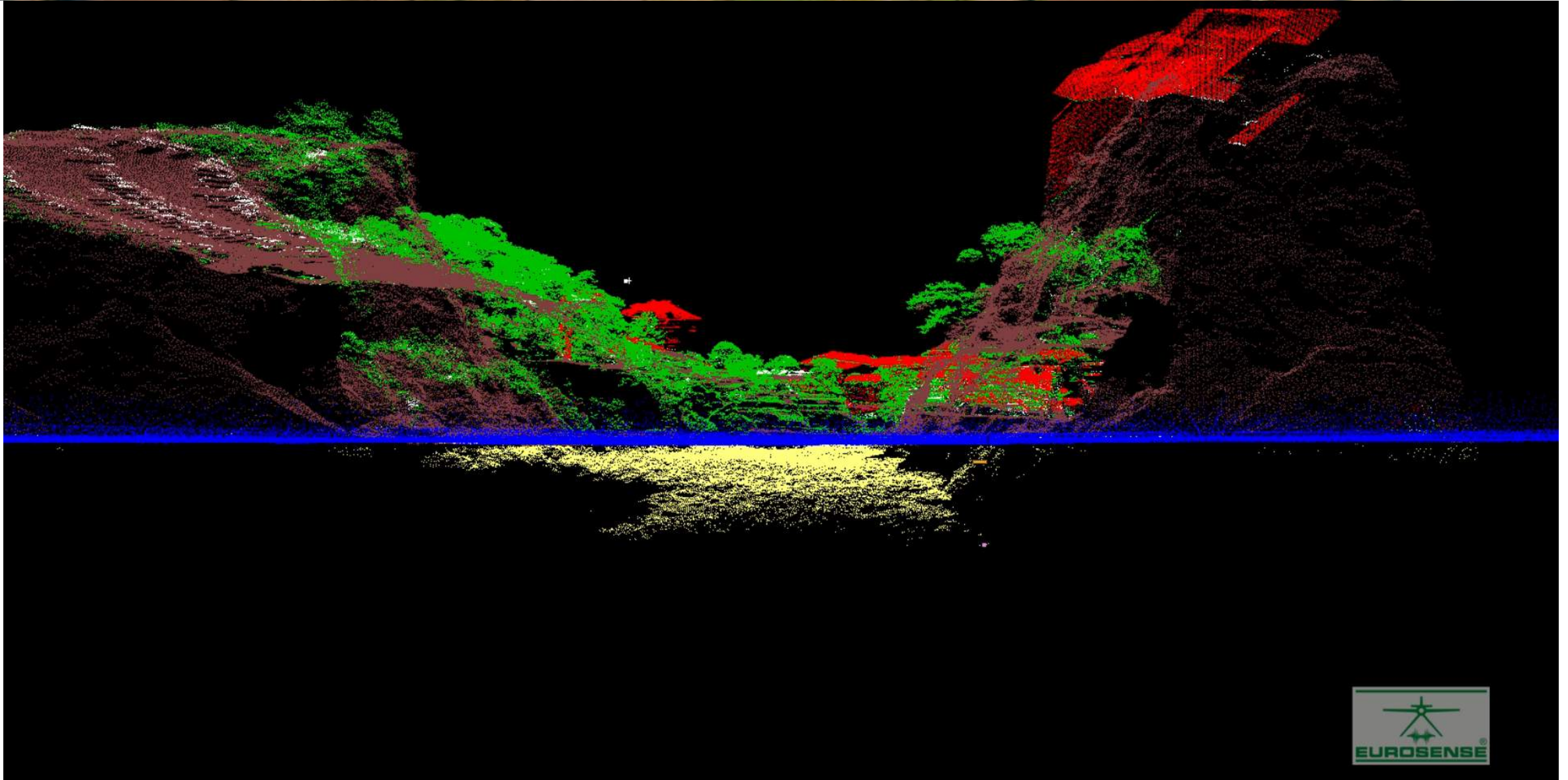
- From “gray” to “blue-green-gray” structures
- Participation in the Horizon 2020 project



Thur (CH) river basin



# Eurosense 55 – LiDAR: Dubrovnik below sea surface



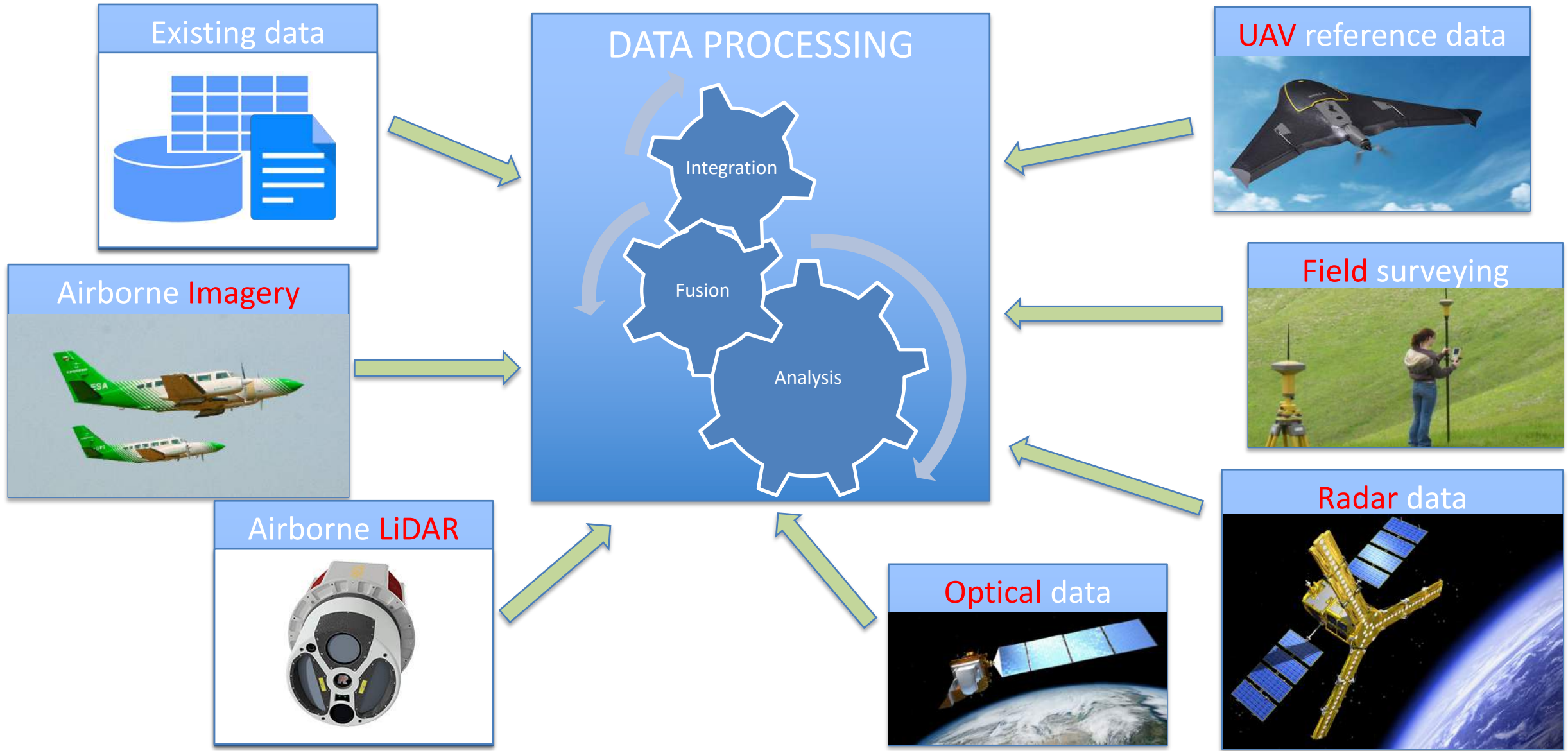


## Future developments

- Integration of Data
- Increased accuracy, increased frequency
- 3D
- Artificial Intelligence (AI)
- Geographic Expansion



# Integration of data from different sources





# Eurosense 55 – Object detection on high-resolution images

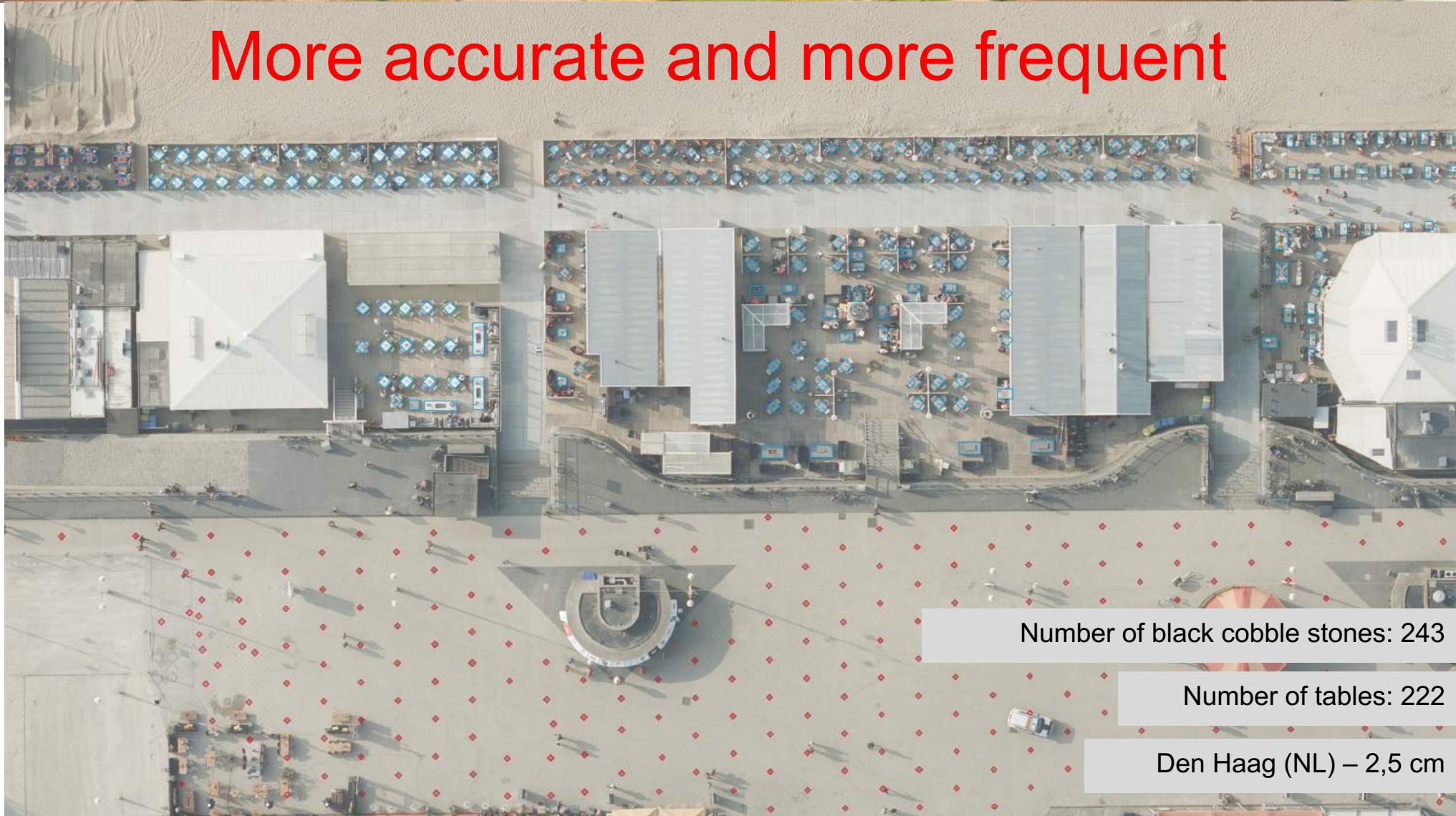




# Eurosense 55 – Object detection on high-resolution images



More accurate and more frequent

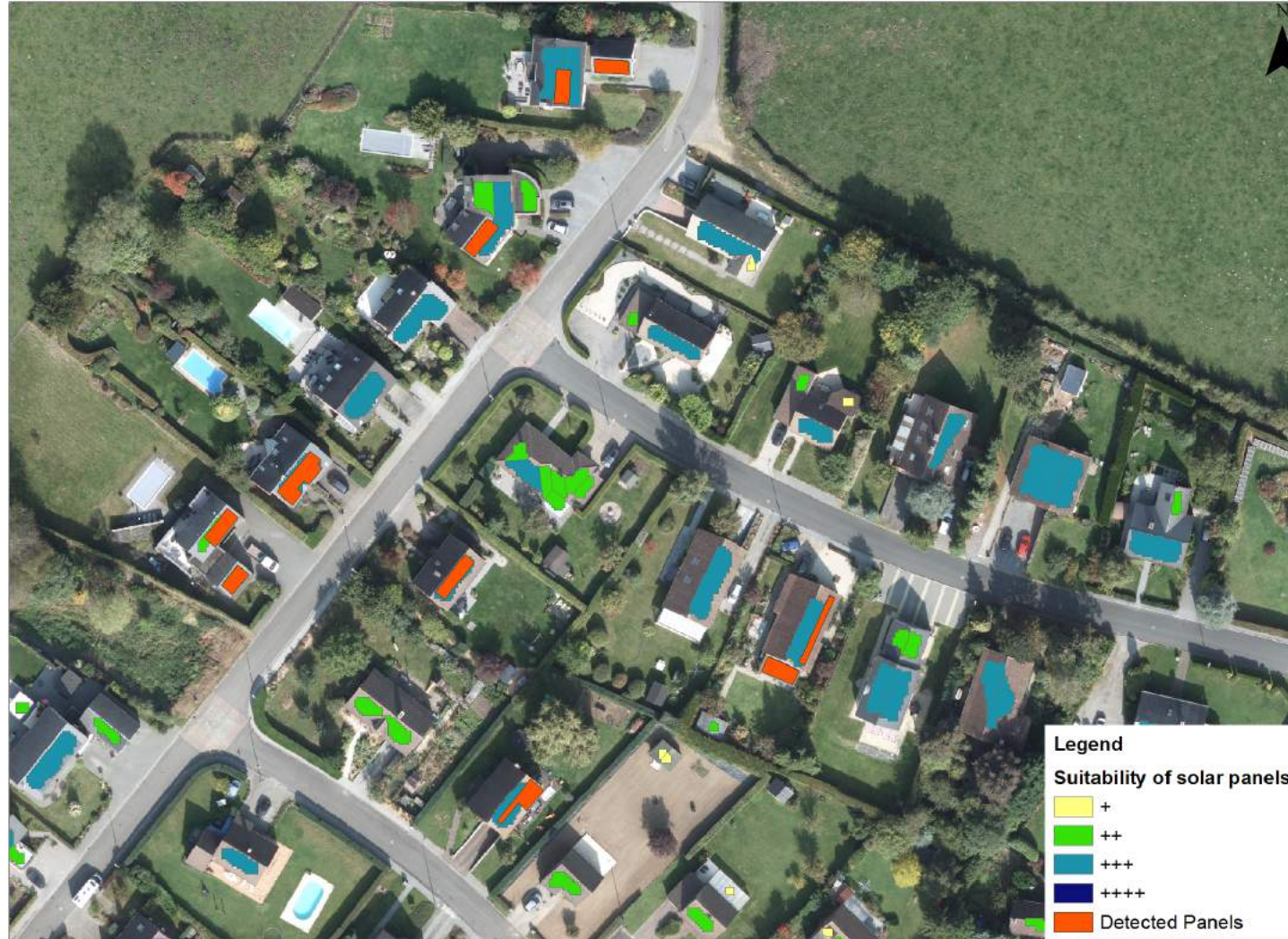




- Increasing precision (GSD , accuracy)
- Increasing complexity to organise survey flights
- A different sensor for each project (hybrid sensors)
- Competition from sensor providers (big data projects)
- Different level of knowledge
- Stereo mapping (classical photogrammetric mapping) →  
Mapping on true-orthos or on point clouds
- 2D to 3D to digital twins

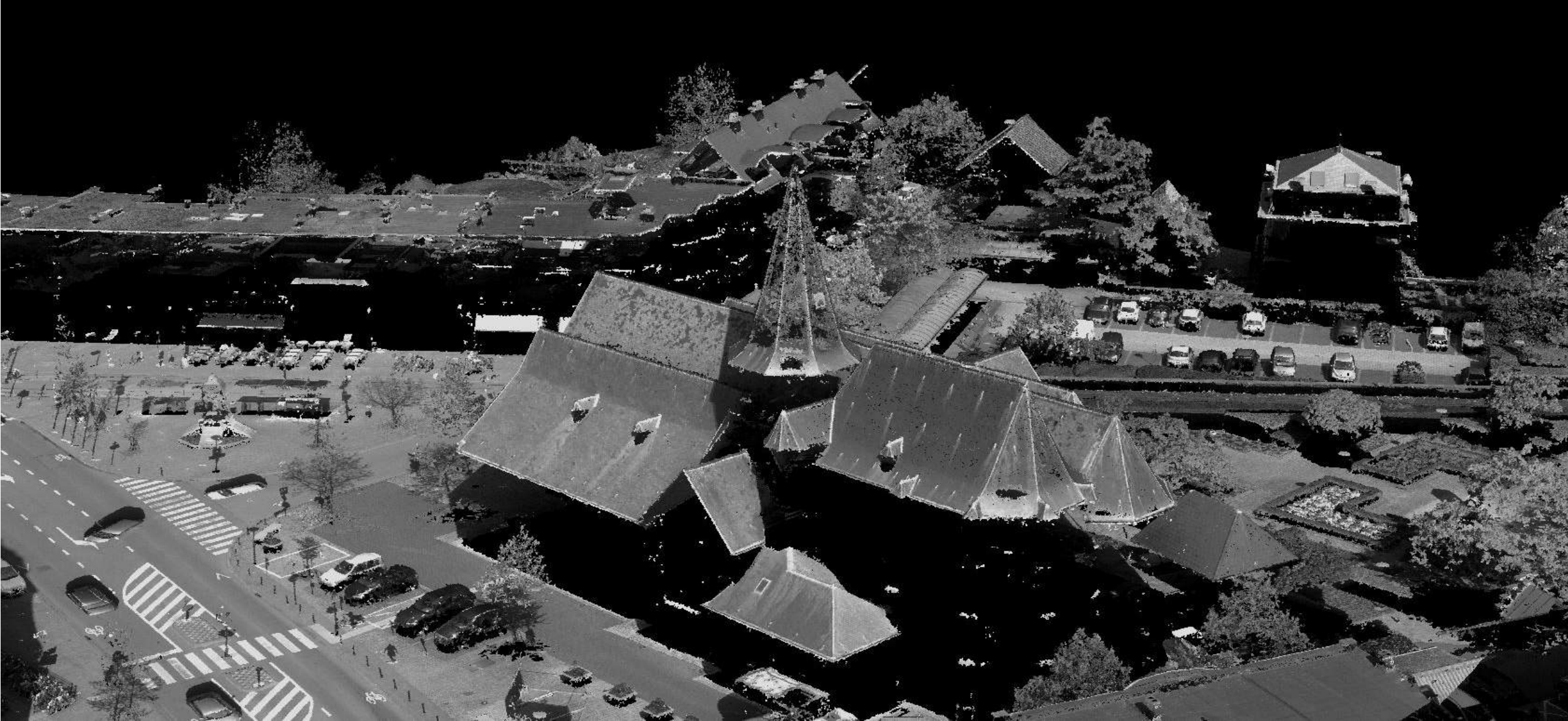


# Eurosense 55 - Future perspective: Artificial intelligence and deep learning





# Eurosense 55 – Zwijndrecht 2cm point cloud

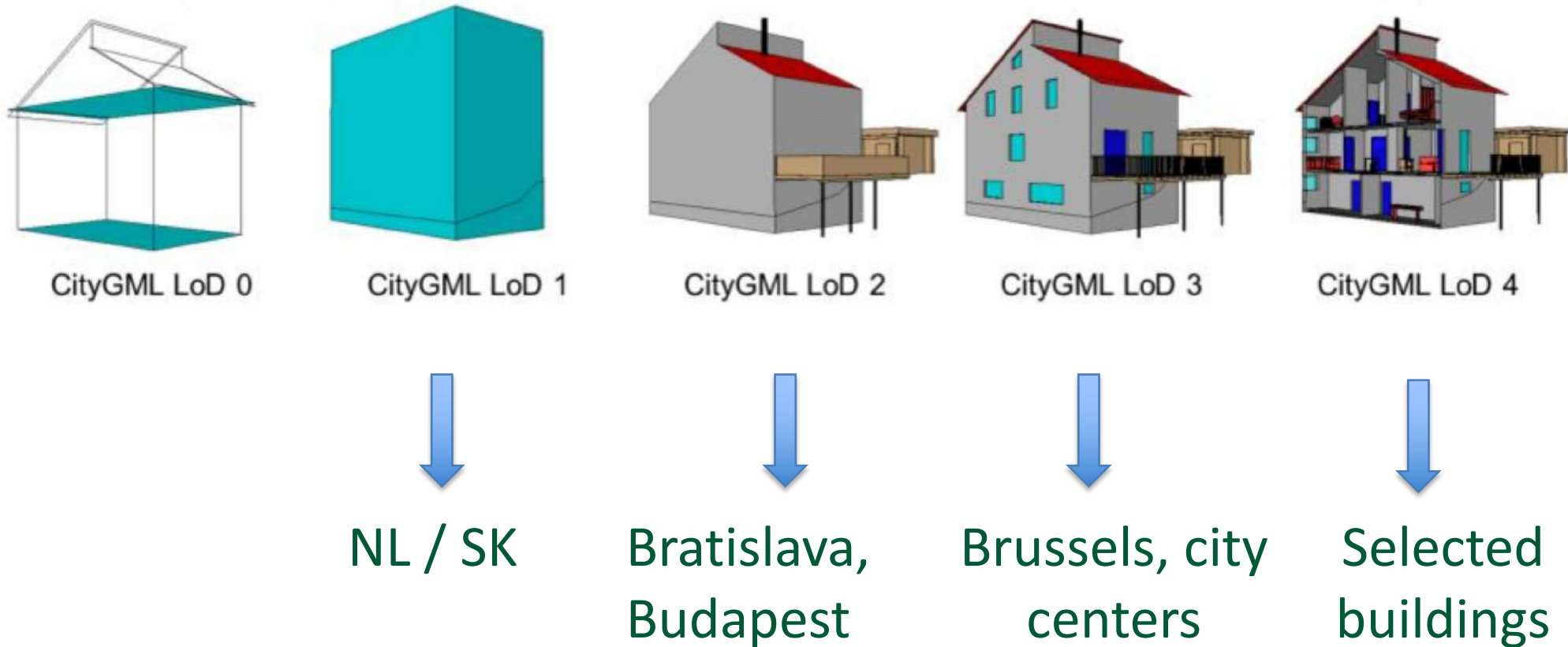




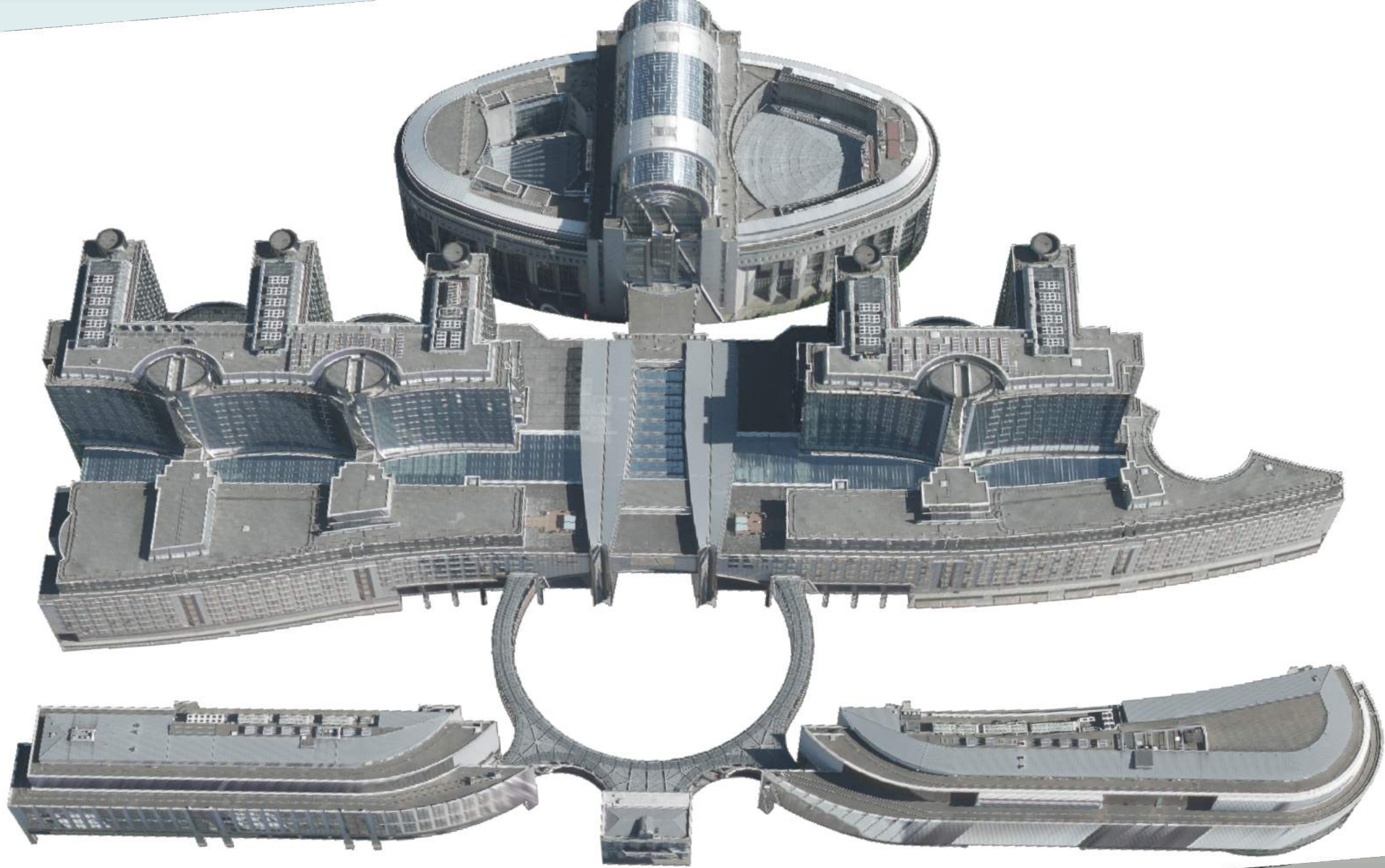
# Eurosense 55 - 3D modeling



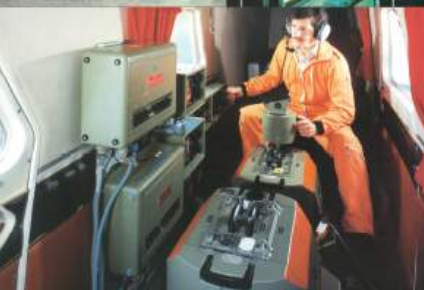
Level of Detail (LoD) and resolution is increasing











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