



European
Commission

European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



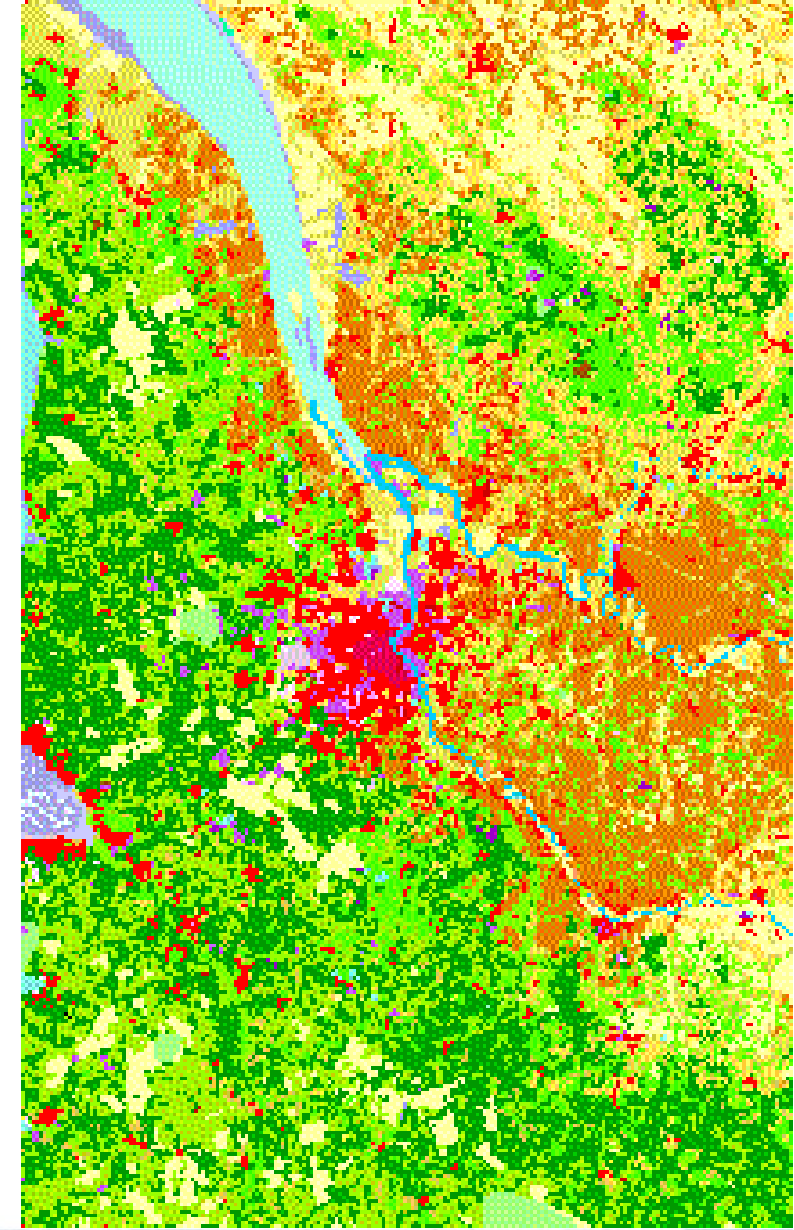
eurostat 

 STATBEL
Belgium in figures

Corine Land Cover Change Tracker (CLC-CT)

Yearly change detection in Corine Land Cover
classification

Team Belgium NSI



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025

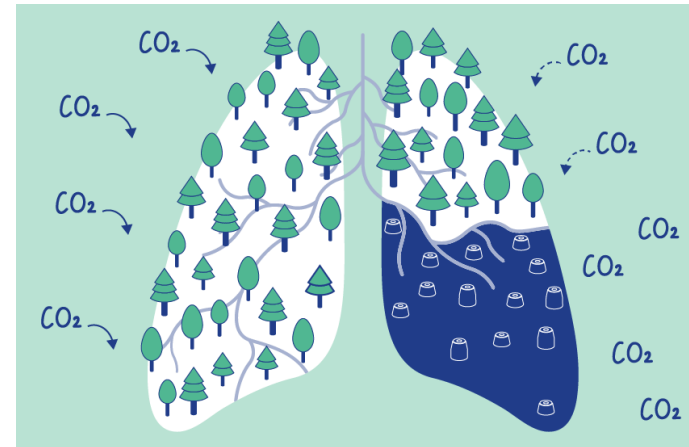
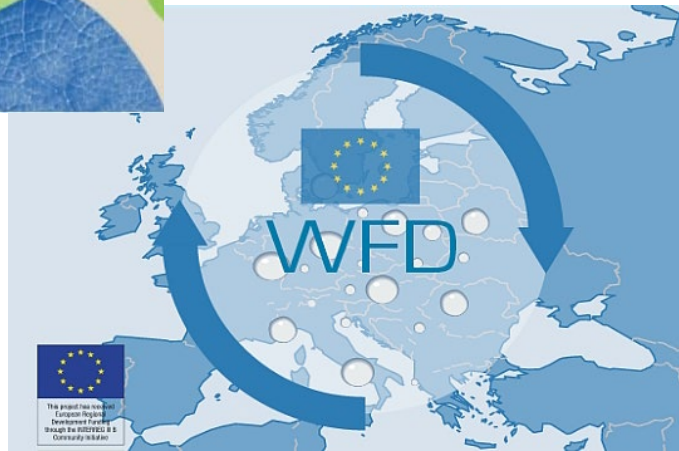


Needs and policy addressed

Rapid monitoring of soil cover and environmental changes



Water Framework Directive



Land Use, Land-Use Change, and Forestry (LULUCF) Regulation



European Big Data Hackathon 2025
Earth Observation: from Space to European Statistics
Brussels, 6–11 March 2025



SDG's actionable



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



Innovative solution

Focus on change detection

→ Useful to prioritise where surveyors should be sent to



Collection efficiency



Collection burden



STATISTICAL WORKING PAPERS | **eurostat** 



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



Process Flow



DATA

- Corine Land Cover 2018
- Sentinel 2 L2A



DATA PROCESSING

- Grid matching
- Classification model



DASHBOARD

- Downloadable data in NUTS 3
- Potential land cover change spotted



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



Dashboard output

1. Flash Estimates available at NUTS 3

(similar to lan_lcv_oww published by Eurostat in NUTS 2)

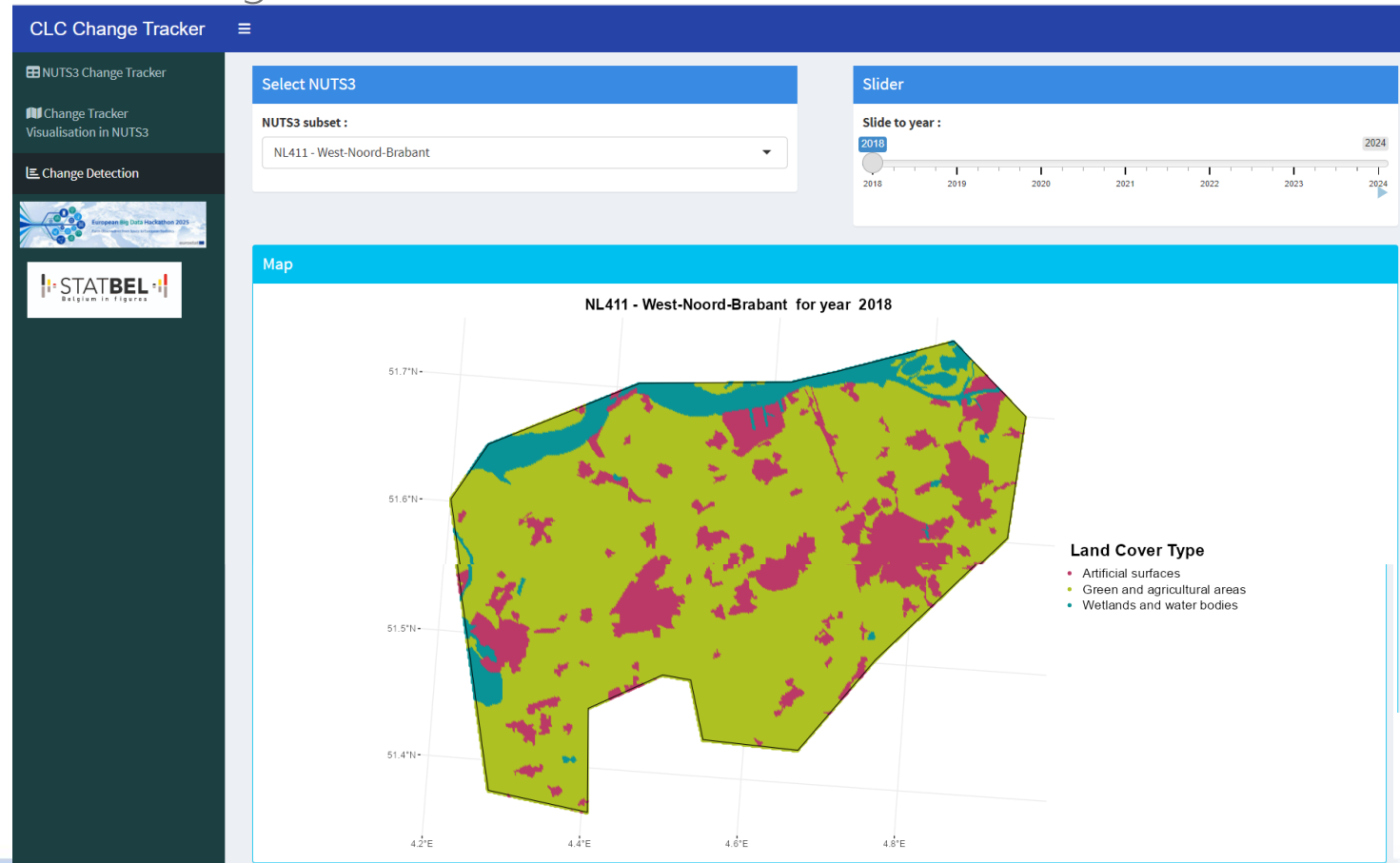
The screenshot displays the 'CLC Change Tracker' interface. On the left is a dark sidebar with navigation options: 'NUTS3 Change Tracker', 'Change Tracker Visualisation in NUTS3', and 'Change Detection'. The main content area is titled 'Select NUTS Level' and shows 'NUTS_3' selected. Below this is the 'Corine Land Cover Change Tracker data' section, which includes a table of data. The table has columns for 'NUTS_ID', 'TX_LAND_COVER', 'NM_LAND_COVER', and years from 2018 to 2024. The data shows changes in land cover for various NUTS 3 regions in Belgium, such as BE211, BE213, and BE225, categorized by 'Artificial surfaces', 'Green and agricultural areas', and 'Wetlands and water bodies'. At the bottom, there is a 'Download Data' section with a dropdown menu set to 'Spreadsheet (.xlsx)' and a 'Download Data' button.

| NUTS_ID | TX_LAND_COVER | NM_LAND_COVER | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---------|------------------------------|---------------|------|------|------|------|------|------|------|
| BE211 | Artificial surfaces | 1 | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 43.1 |
| BE211 | Green and agricultural areas | 2 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.5 |
| BE211 | Wetlands and water bodies | 3 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 |
| BE213 | Artificial surfaces | 1 | 23.2 | 23.2 | 23.2 | 23.2 | 23.2 | 23.3 | 23.3 |
| BE213 | Green and agricultural areas | 2 | 75.7 | 75.7 | 75.7 | 75.7 | 75.7 | 75.6 | 75.6 |
| BE213 | Wetlands and water bodies | 3 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| BE225 | Artificial surfaces | 1 | 21.4 | 21.3 | 21.4 | 21.4 | 21.3 | 21.4 | 21.4 |
| BE225 | Green and agricultural areas | 2 | 77.0 | 77.0 | 77.0 | 77.0 | 77.0 | 77.0 | 77.0 |



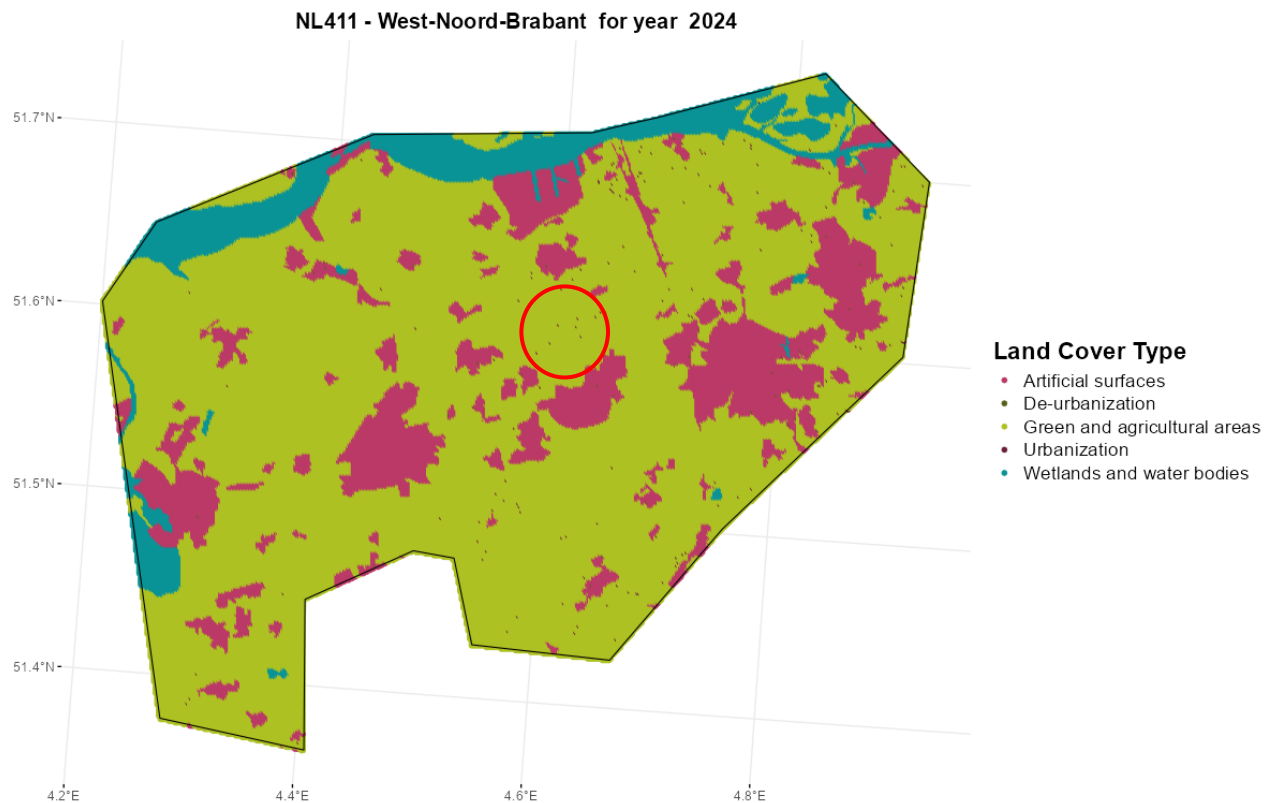
Dashboard output

2. Inventory of potential changes and visualisation



Dashboard output

2. Inventory of potential changes and visualisation



European Big Data Hackathon 2025

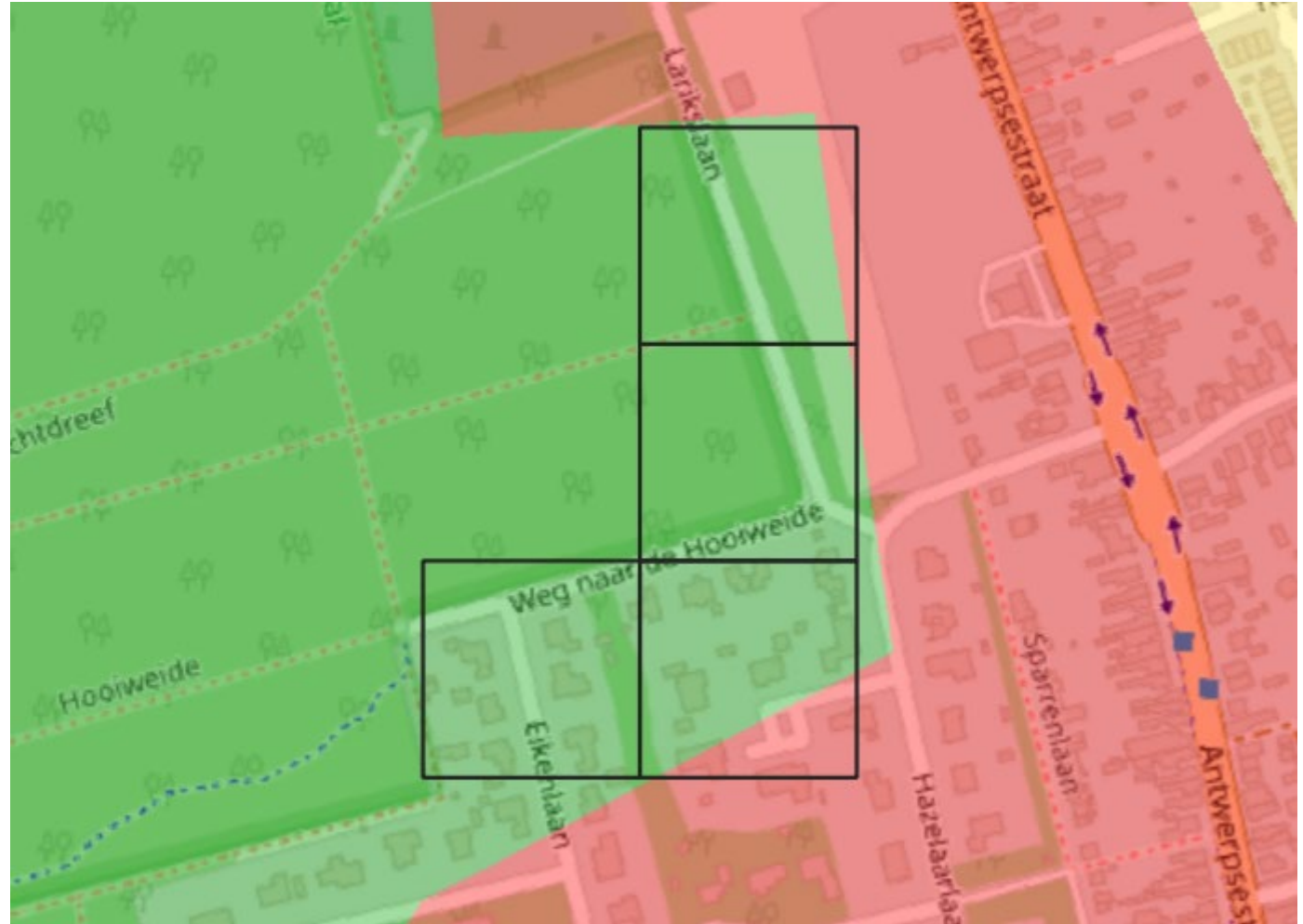
Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



Example

1. Corine Land Cover detects artificial infrastructures (red) and green areas
2. Detection of potential changes (cells)
3. Rapid human reclassification of the bottom cells



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025

STATBEL
Belgium in figures



eurostat 

Further development

1. Improvement of classification modelling through validation using extended time series and broader spatial coverage
2. Integration of more detailed land cover classification
3. Scalable at local administrative unit level



European Big Data Hackathon 2025
Earth Observation: from Space to European Statistics
Brussels, 6–11 March 2025

STATBEL
Belgium in figures



eurostat 



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



Needs and policy addressed

Rapid monitoring of soil cover and environmental changes

EU Green Deal

EU Biodiversity Strategy 2030

Land Use, Land-Use Change, and Forestry (LULUCF) Regulation

Water Framework Directive



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



Dissemination and precision

Last Corine Land Cover = baseline

Sentinel 2-L2A images = observe changes

Simple classification model = change or no change



European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025

STATBEL
Belgium in figures



eurostat 