

# WEO SATELLITE ANALYTICS DELIVER FOR BRUSSELS ENVIRONMENT

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## OBJECTIVES

Brussels Environment is tasked with protecting the regions valuable biodiversity and water resources. A big threat is the replacement of natural surfaces with concrete and asphalt as the city grows.

The region was in need of a new sealed surface map to monitor this challenge. According to project leader Elise Beke, "this mapping is a key instrument of our 2022-2027 Water Management Plan and will help us understand and report on the evolution of surface sealing in different municipalities, on both public and private land."

## SOLUTION

WEO proposed to produce two sealed surface maps - one from commercial satellite imagery and the other using a combination of Sentinel-2 data and Aerial Orthophotos, which were already taken each year by the region.

WEO showed that its Sentinel-2 based map had an equally high accuracy to that produced with commercial imagery. This side-by-side comparison gave Brussels Environment the confidence to move ahead with WEO's product for future regular updates.

WEO mapped the entire region of Brussels with high accuracy at a resolution of 1m. This data is critical to understand rainfall runoff across the city, as well as to track efforts by different stakeholders to reduce the use of asphalt, concrete and pavement in the city and replace them with permeable materials, such as grass or gravel.

## BENEFITS

### 1. Widely Used

According to Beke, the new maps "have received significant attention across the region from water managers, municipalities and academic researchers" helping to understand the impact of surface sealing on the water cycle.

### 2. High accuracy

WEO delivered superior accuracy to the previous map used by Brussels Environment, with an F-Score of 0.92, compared to 0.86.

### 3. Great to work with

According to Elise Beke, WEO 'brought together a range of stakeholders to co-design an approach which met our needs and then delivered on this approach within agreed timings and with quality results that met our need.' Brussels Environment envisages to update this map regularly in the future.

## AT A GLANCE CHALLENGES

- Previous map was outdated and not reproducible
- Needed high accuracy and detail
- Wanted regular updates

## BENEFITS

- Delivered 92% accuracy
- Fast turnaround with regular updates
- Use of open source data drives down cost compared



## ELISE BEKE

*Environmental Data Manager,  
Brussels Environment*

"This tool provides us with the impermeable surface monitoring capability needed to take action in the restoration of the natural water cycle in the city"

<https://environnement.brussels/pro/outils-et-donnees/cartes/carte-des-surfaces-impermeables-de-la-region-de-bruxelles-capitale>