

The use of open data for assessing climate & environmental risks

Belgian Climate Risk Assessment

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Content

The components of a risk

Risks & main findings of the BCRA

Climate risk analysis & open-source data, a love affair

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The Belgian Climate Risk Assessment (BCRA)



ICEDD
INSTITUTE FOR ENVIRONMENTAL AND CLIMATE CHANGE



vito



LIÈGE université
Spiral



möbius

RAMBOLL

Risk: a definition



Clusters



Ecosystems



Food



**Infrastructure &
buildings**



Health & wellbeing



Economy & Finance






28 selected risks



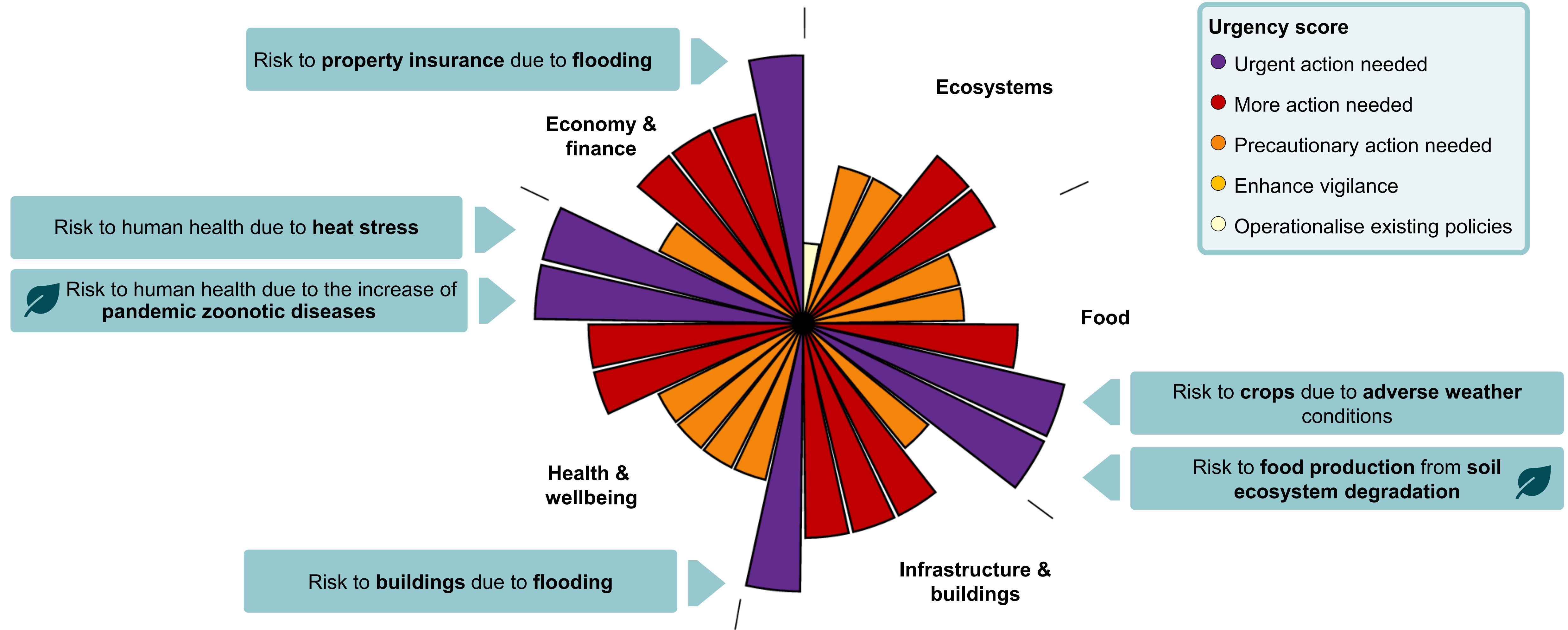
Climate risks



Ecosystem degradation risks

Ecosystems 	Food 	Infrastructure & Buildings 	Health & Wellbeing 	Economy & Finance 
Risk to forest ecosystems due to gradual climate change	Risk to crops due to adverse weather conditions	Risk to buildings due to flooding	Risk to human health due to heat stress	Risk to property insurance due to flooding
Risk to forest ecosystems from wildfire	Risk to food production from soil ecosystem degradation	Risk to buildings due to changing moisture regime	Risk to human health due to the increase of vector-borne disease	Risk to public finances due to climate change
Risk to soil ecosystems due to droughts and erosion	Risk to food production due to pollinator decline	Risk to infrastructures and buildings due to invasive alien plant species	Risk to human health due to the increase in non-communicable disease	Risk to international food prices due to climate change
Risk to freshwater ecosystems due to droughts	Risk to livestock production from increased spread of diseases	Risk to energy & transport due to extreme weather conditions	Risk to mental health due to climate change	Risk to strategic imports due to climate change
Risk to terrestrial coastal ecosystems due to sea level rise, coastal flooding and changes in soil salinity	Risk to food safety due to climate impacts on global agricultural production	Risk to civil and domestic water infrastructures due to droughts	Risk to human health due to the increase of pandemic zoonotic diseases	Risk to industry from water stress
			Risk to health systems and social care delivery due to climate change	
			Risk to social cohesion and inequalities due to climate change	
			Risk of internal people displacement in Belgium due to flooding	

6 risks demand urgent action



Risk: a definition



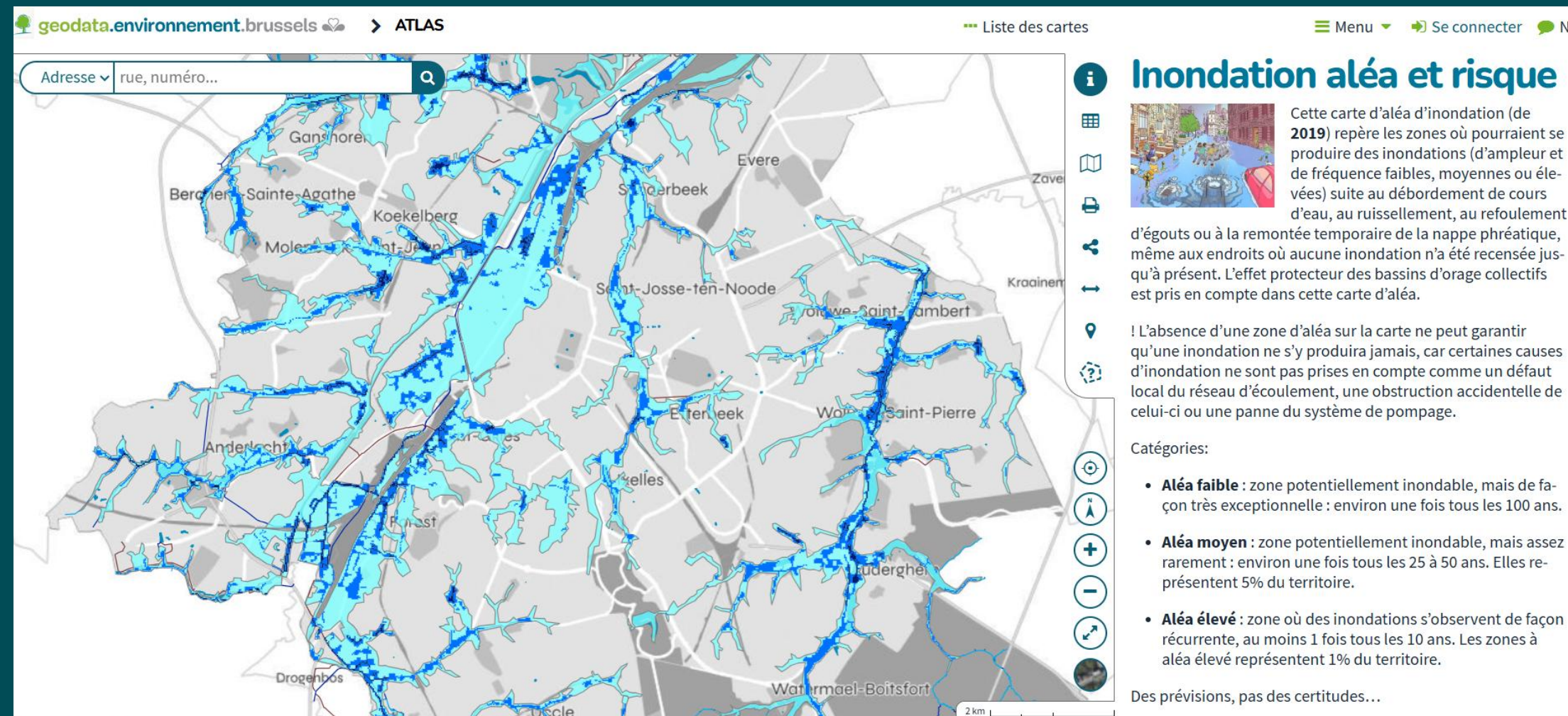
What open-source data is relevant for climate risk analysis?

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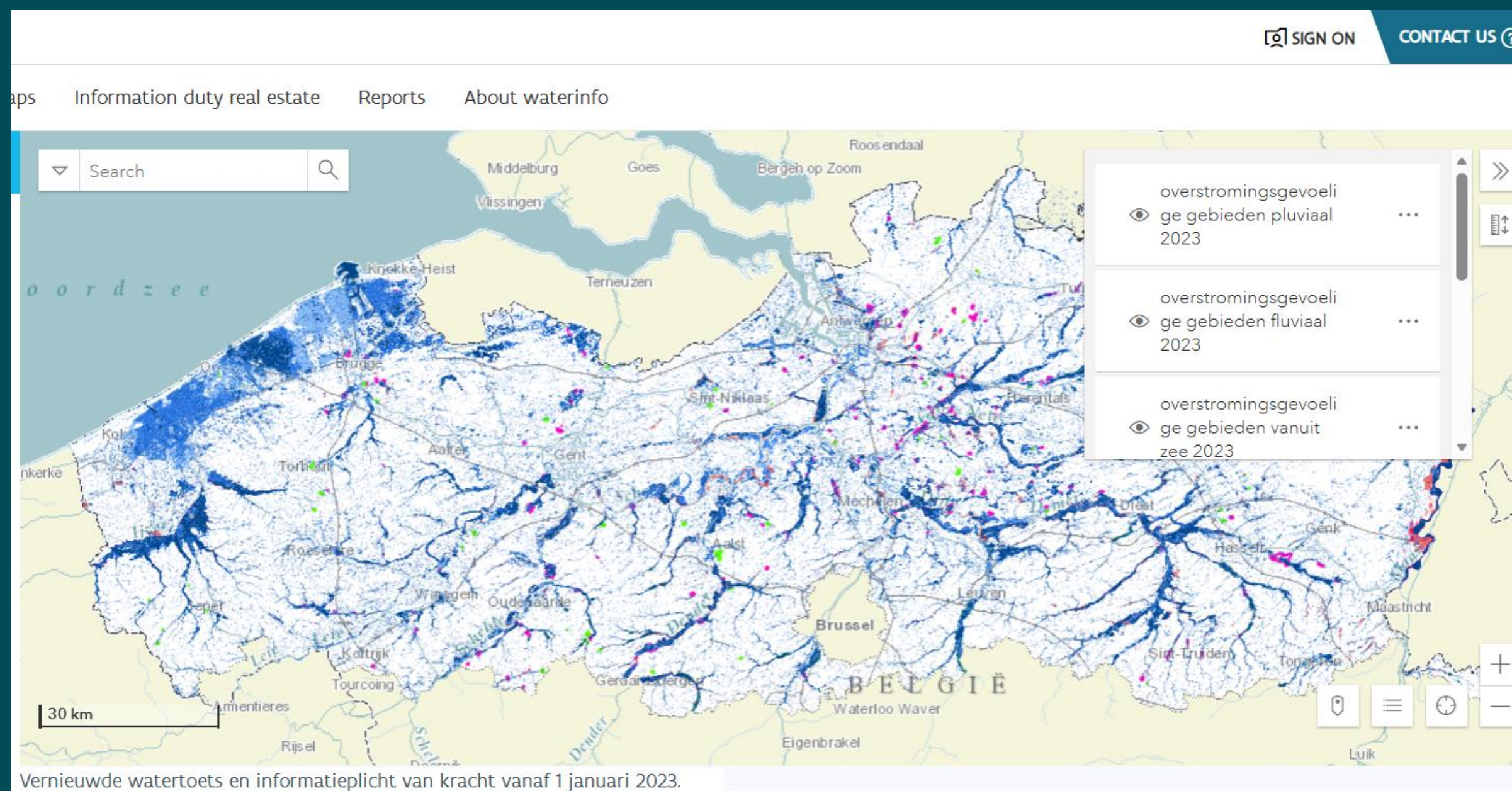
HAZARD



e.g. Floods

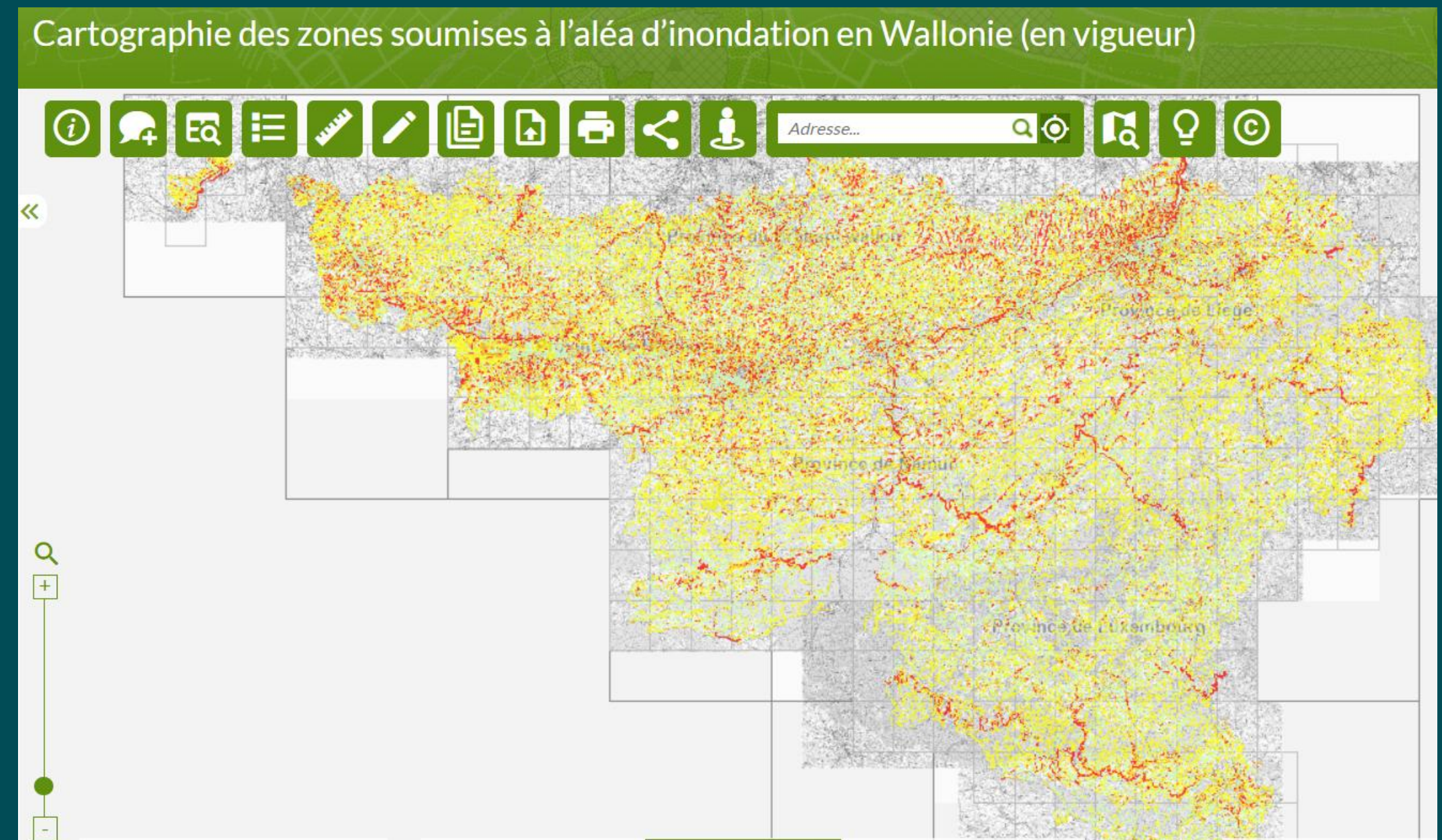


<https://environnement.brussels/citoyen/documentation-et-outils/cartes/cartes-relatives-aux-inondations-pour-la-region-bruxelloise>



Vernieuwde watertoets en informatieplicht van kracht vanaf 1 januari 2023.

<https://waterinfo.vlaanderen.be/informatieplicht>



<https://environnement.wallonie.be/home/gestion-environnementale/risques-climatiques/inondations/urbanisme/cartes-inondations/carte-alea-inondation.html>

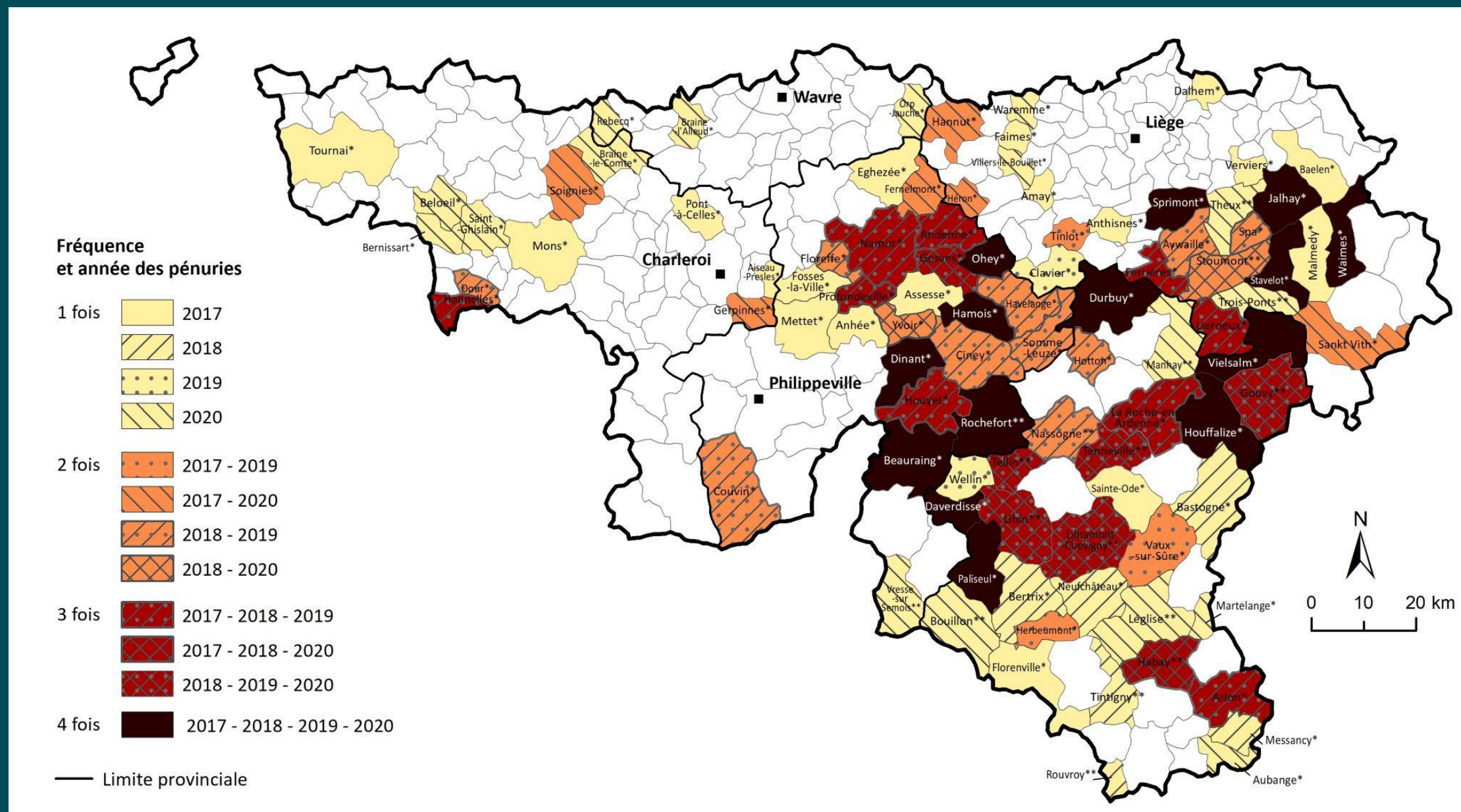
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HAZARD

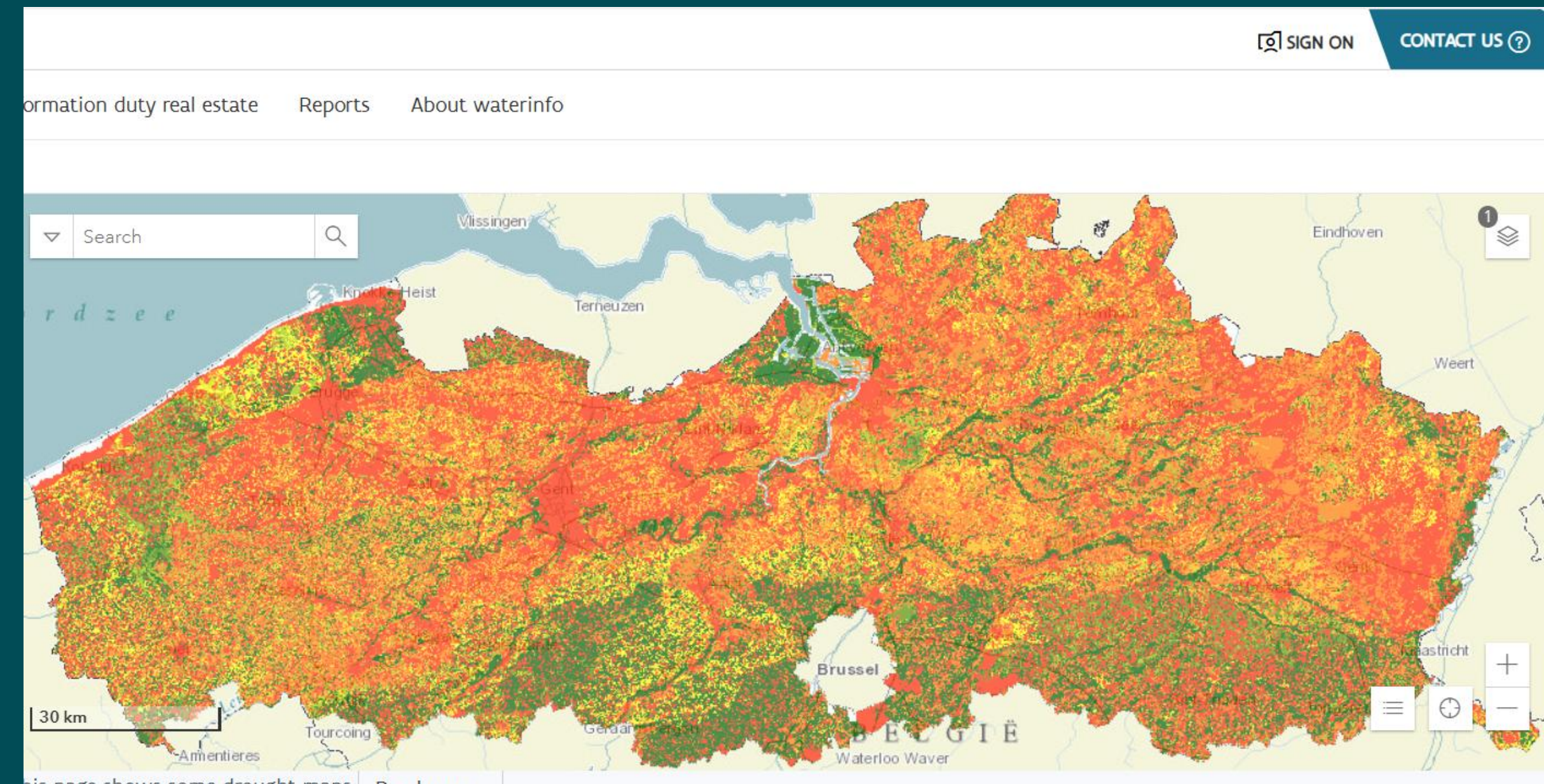


e.g. Drought



Municipalities impacted by drought from 2017 to 2020

<https://etat.environnement.wallonie.be/contents/indicatorsheets/EAU%20Focus%202.html>



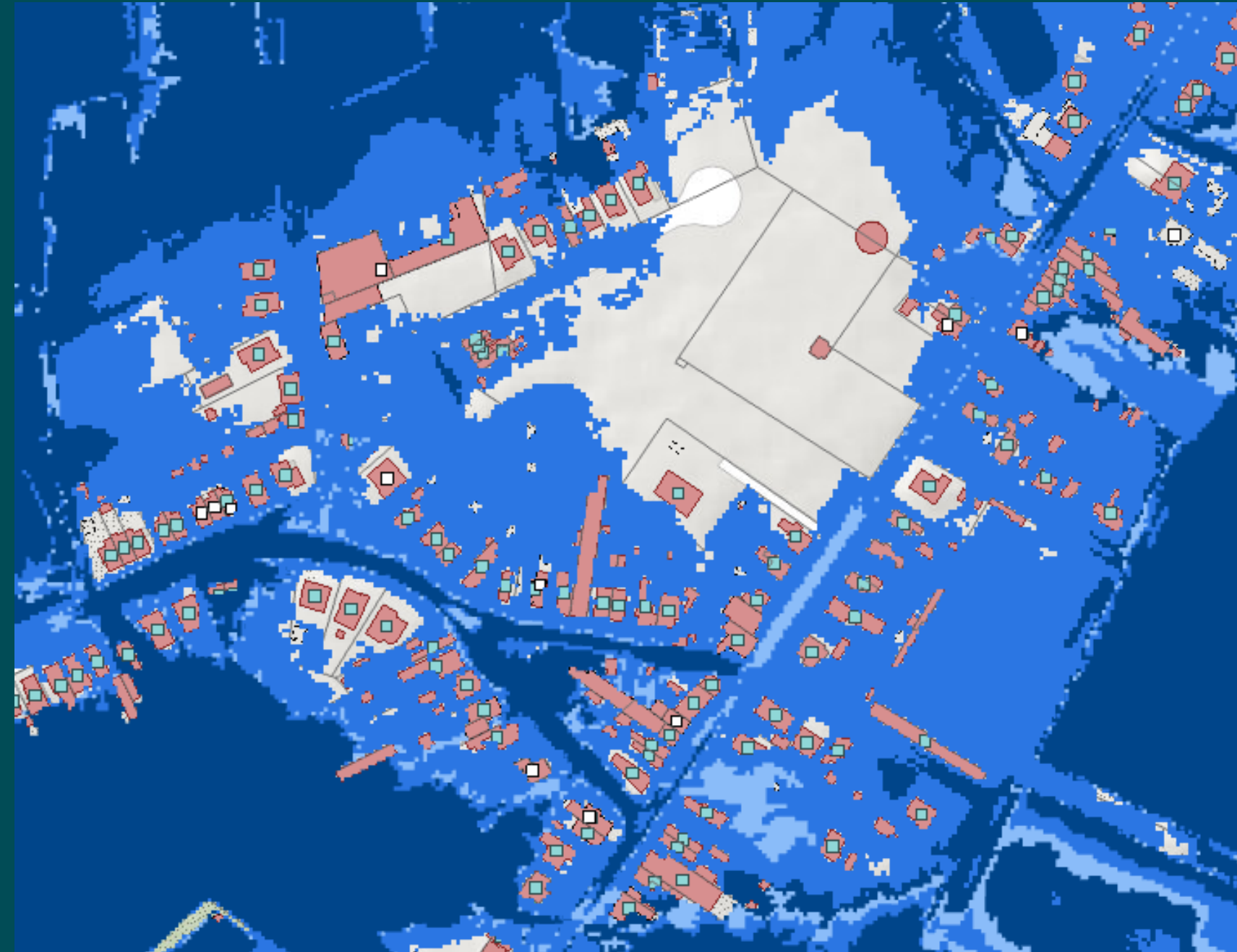
Drought duration

https://waterinfo.vlaanderen.be/Maps?path=Public/Kaarten/P05_Droogtefrequentiekaarten

What open-source data is relevant for climate risk analysis?

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EXPOSURE



<https://waterinfo.vlaanderen.be/informatieplicht>



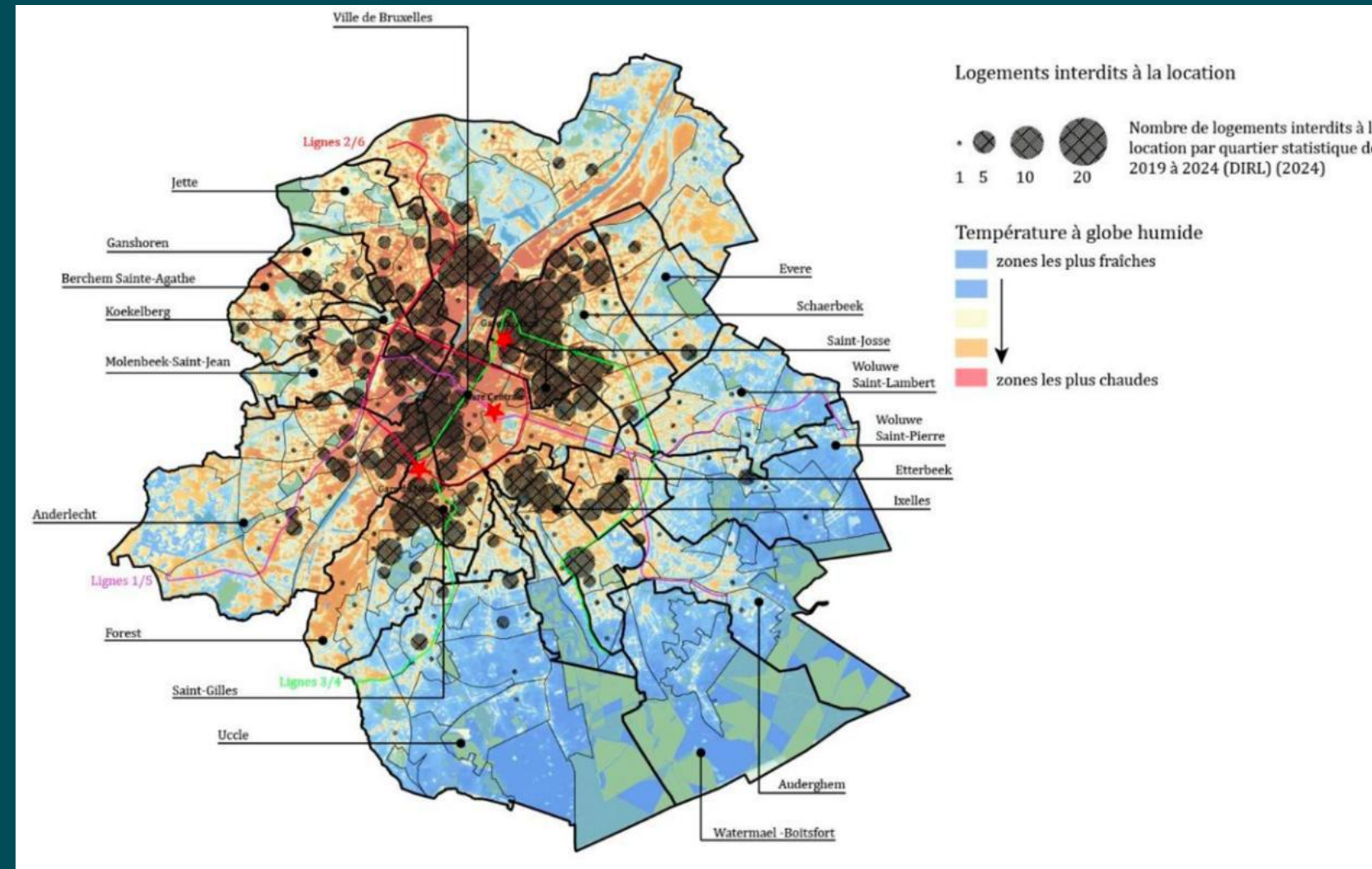
- Use of data for each hazard - flood, drought, heat wave, wildfire, etc.
- Need of maps for the current situation but also for future climate scenarios
- Hazard maps reflect also the **exposure** of society component when crossed with other data type such as buildings' location, industries, critical assets, vulnerable people, etc.

What open-source data is relevant for climate risk analysis?

VULNERABILITY

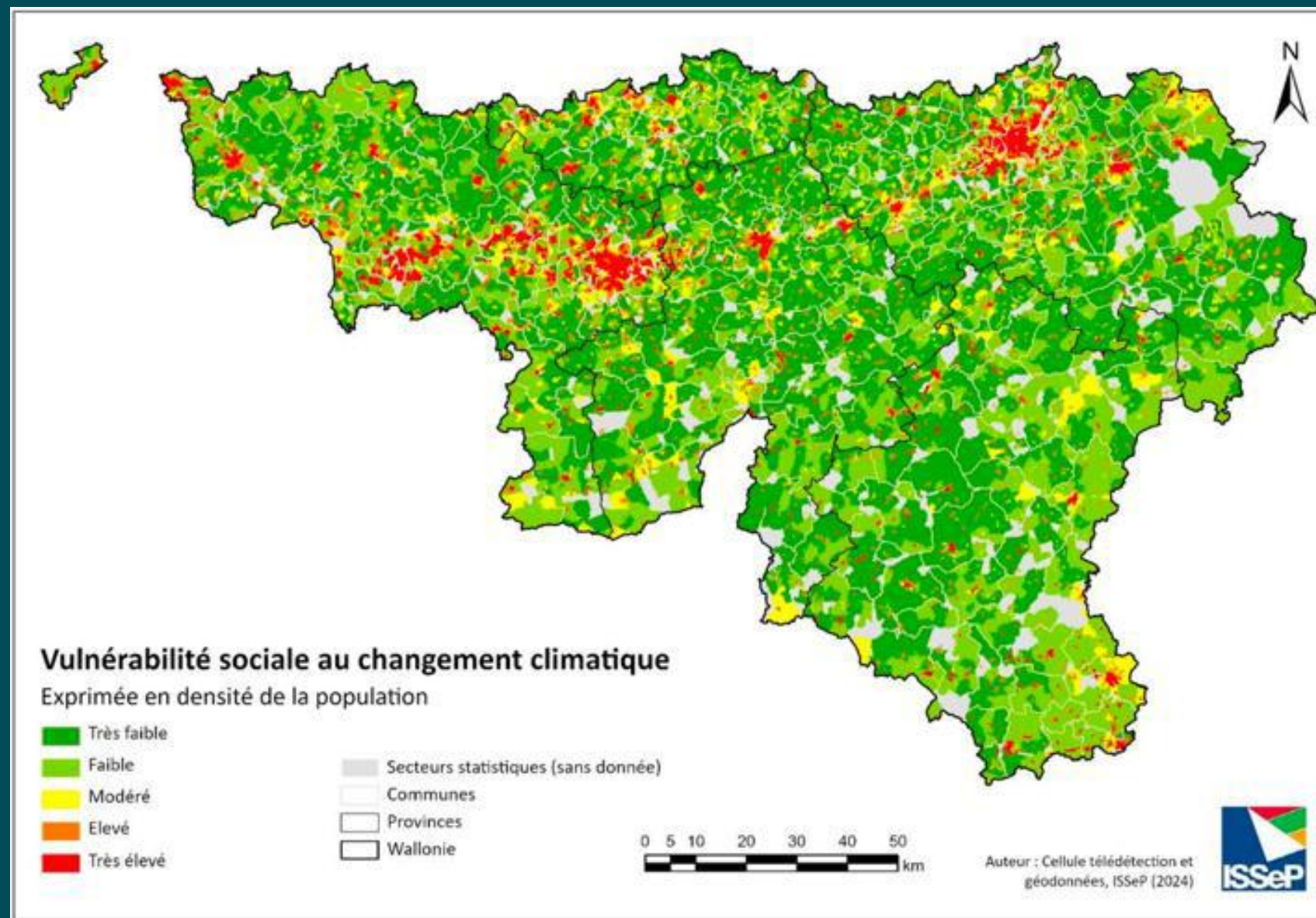


e.g. social vulnerability



Brussels - Exposure to heat stress (WBT) of housing immediately prohibited from rental (De Muyne et al., 2025)

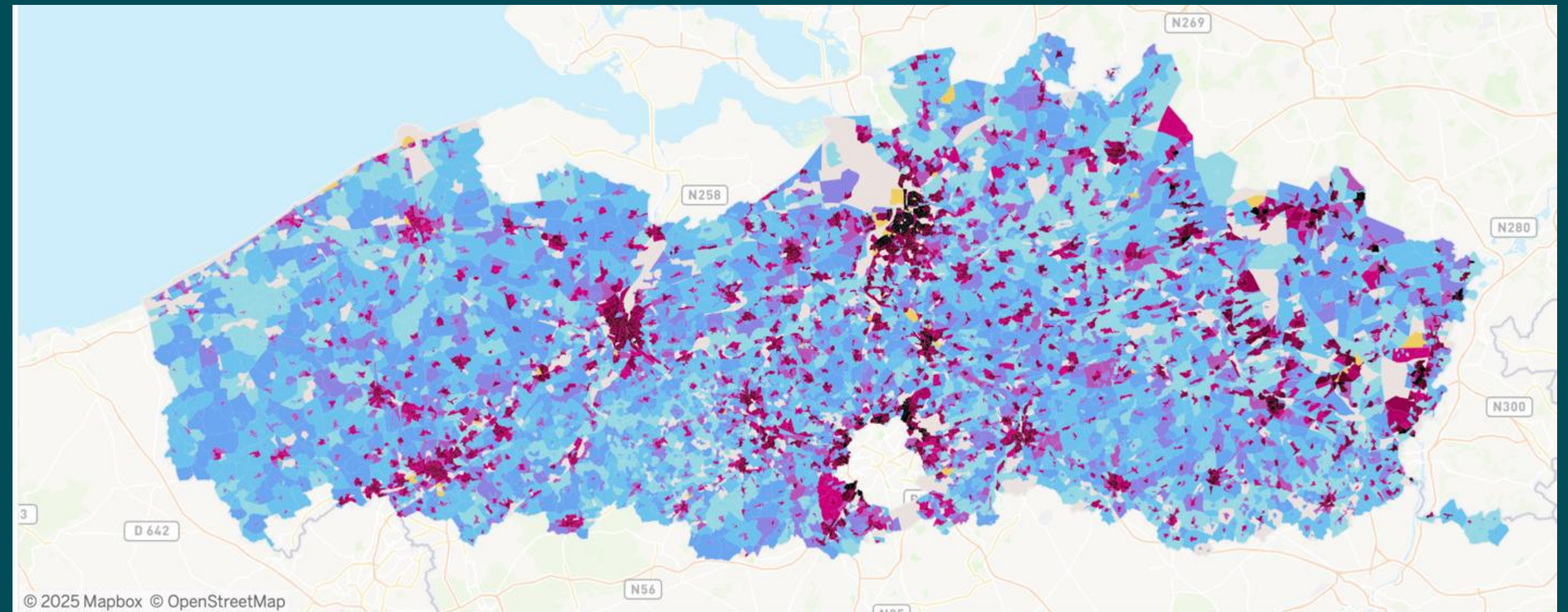
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Wallonia - Map on social vulnerability to climate change
From and green “very low” to red “very high” (Loozen et al, 2025);

[https://portailclimat-](https://portailclimat-awac.be/indicateurs?location=R%C3%A9gion%20Wallonne&theme=social)

[awac.be/indicateurs?location=R%C3%A9gion%20Wallonne&theme=social](https://portailclimat-awac.be/indicateurs?location=R%C3%A9gion%20Wallonne&theme=social)



Flanders - Heat vulnerability map (Verachttert et al., 2023)

<https://impacttool.toepassingen.vmm.vlaanderen.be/>

Conclusion



Many relevant datasets are already **available** across regional portals, at both global and local levels


However, they remain fragmented and insufficiently harmonized

→ This limits the production of consistent national-scale analyses and maps, requiring shared methodologies and common thresholds



Thank you for your
attention

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