

UN-GGIM Europe plenary meeting  
Brussels – July 25, 2025



# Geodata & risk assessment in Belgium

*Wildfires as a case study*

cerac

# Presentation content

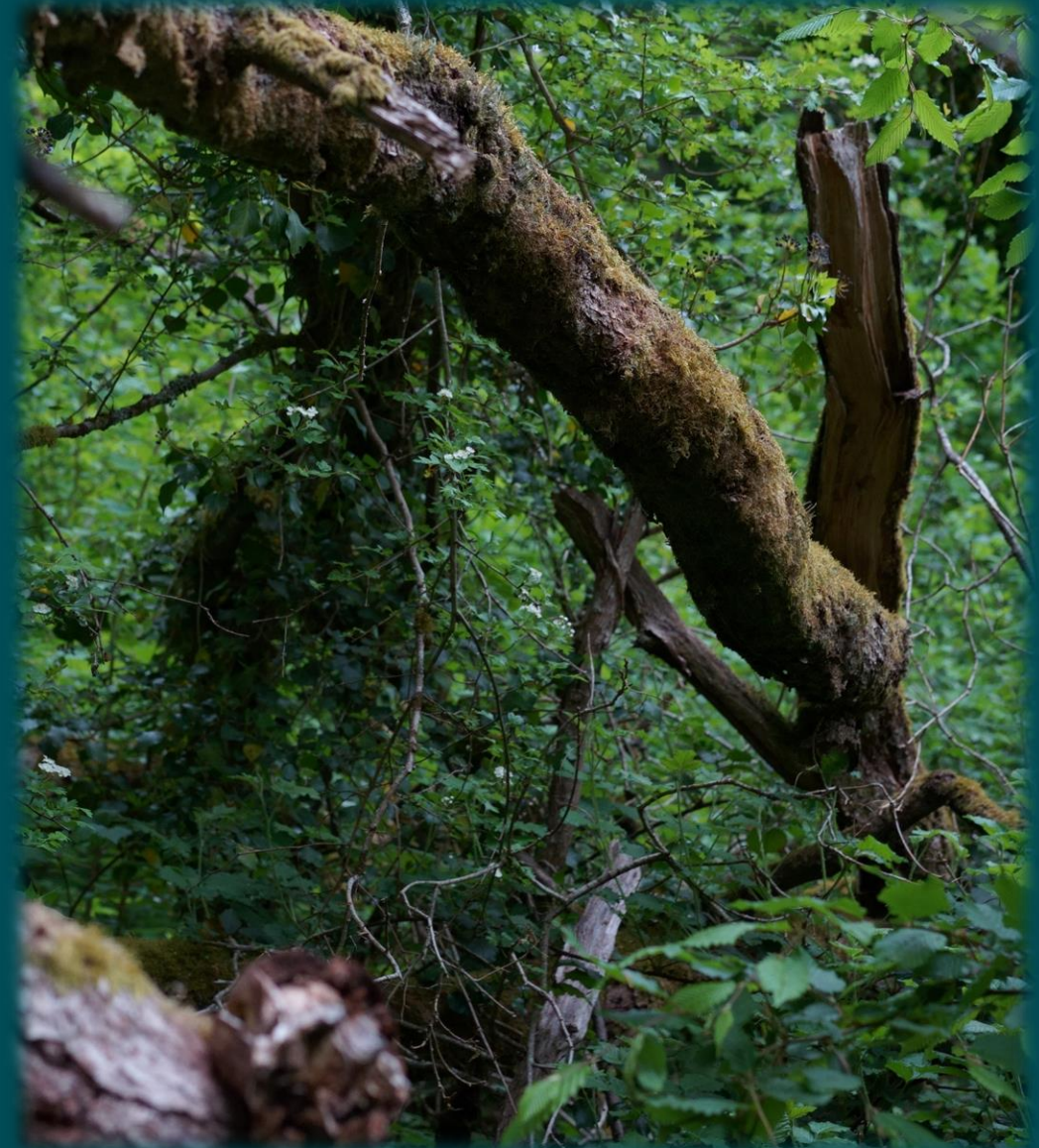
cerac

A few words about Cerac

Wildfires vs. CC, a rising risk for Belgium

Why reliable geospatial data is so important

The floor is yours





**A few words  
about us**

**cerac**

# (BE) Climate Risk Assessment Center

cerac



- The very ignition: **July 2021 devastating floods**
- Cerac started in late 2023 with arrival of management team, majority of staff hired in 2024 (currently 10 people)
- Royal Decree (20-12-2024) establishing the Climate Risk Assessment Center

# (BE) Climate Risk Assessment Center

ceraac



- *Evaluate risks:* we produce **independent risk assessments** to evaluate Belgium's exposure and vulnerability to climate & environment hazards **in the mid- and long term**
- *Provide information and recommendations:* We report primarily to **the National Security Council**, with a focus on **risks for national security** and resilience/adaptation
- *International networking and cooperation*  
UN, NATO, EU, Benelux, IUCN, ...

# Ongoing First National Risk Assessment

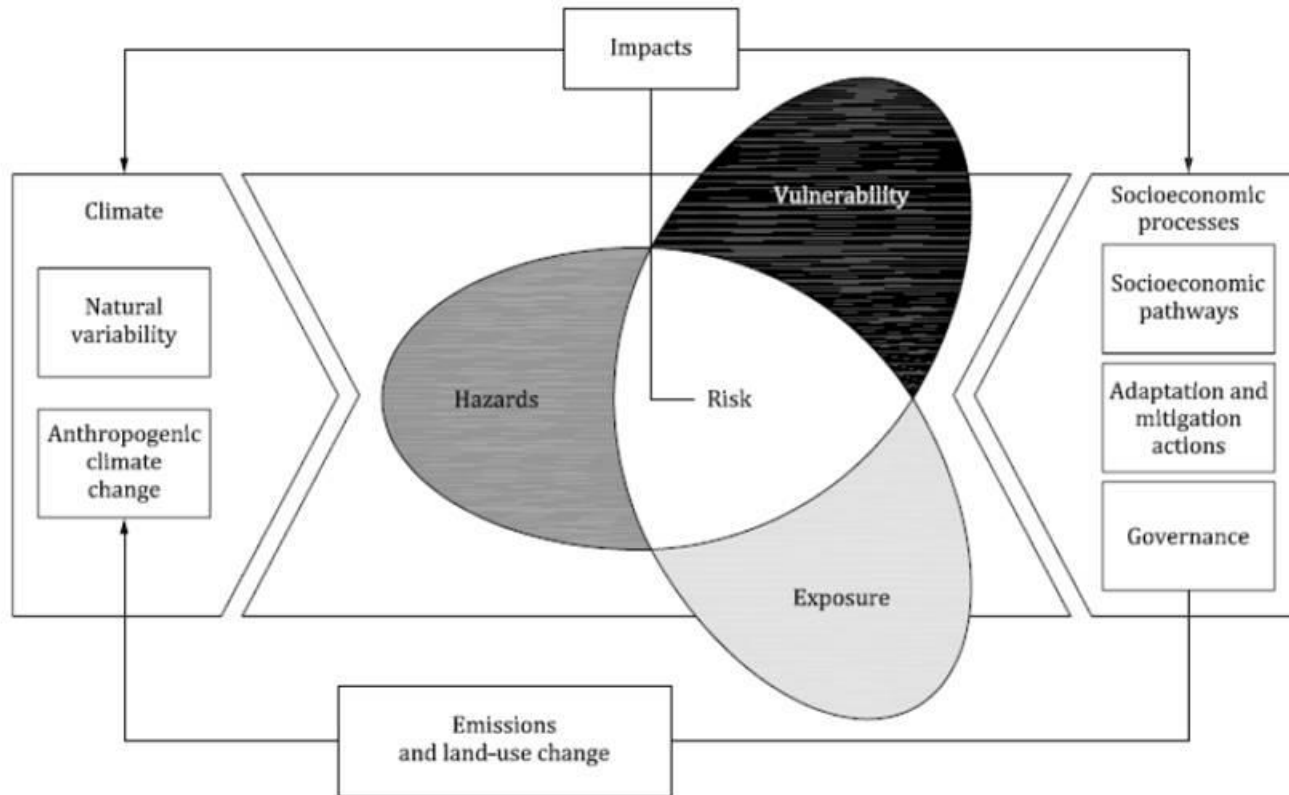


Figure 2: Illustration of the core concept of risk (IPCC, 2014)

- First national risk analysis of **climate change** and **biodiversity loss**
- 29 risks identified / 5 systems: Ecosystems, Food, Infrastructure & buildings, Health & population wellbeing, Economy and finance
- RC1-01 Risk to forest ecosystems due to **gradual climate change** => higher wildfire risks?
- RC1-02 Risk to forest ecosystems from **wildfire**

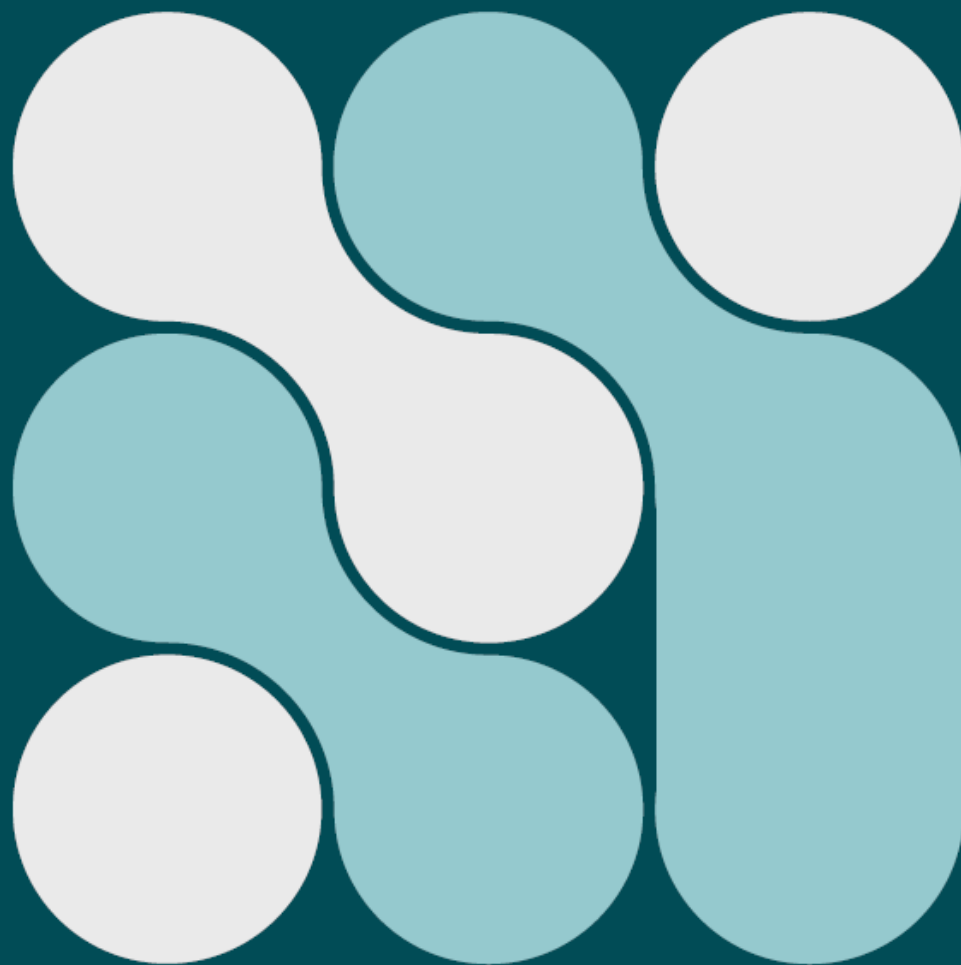




# Wildfires

## A rising risk for Belgium

cerac



## Is Belgium ready for more frequent and intense wildfires?



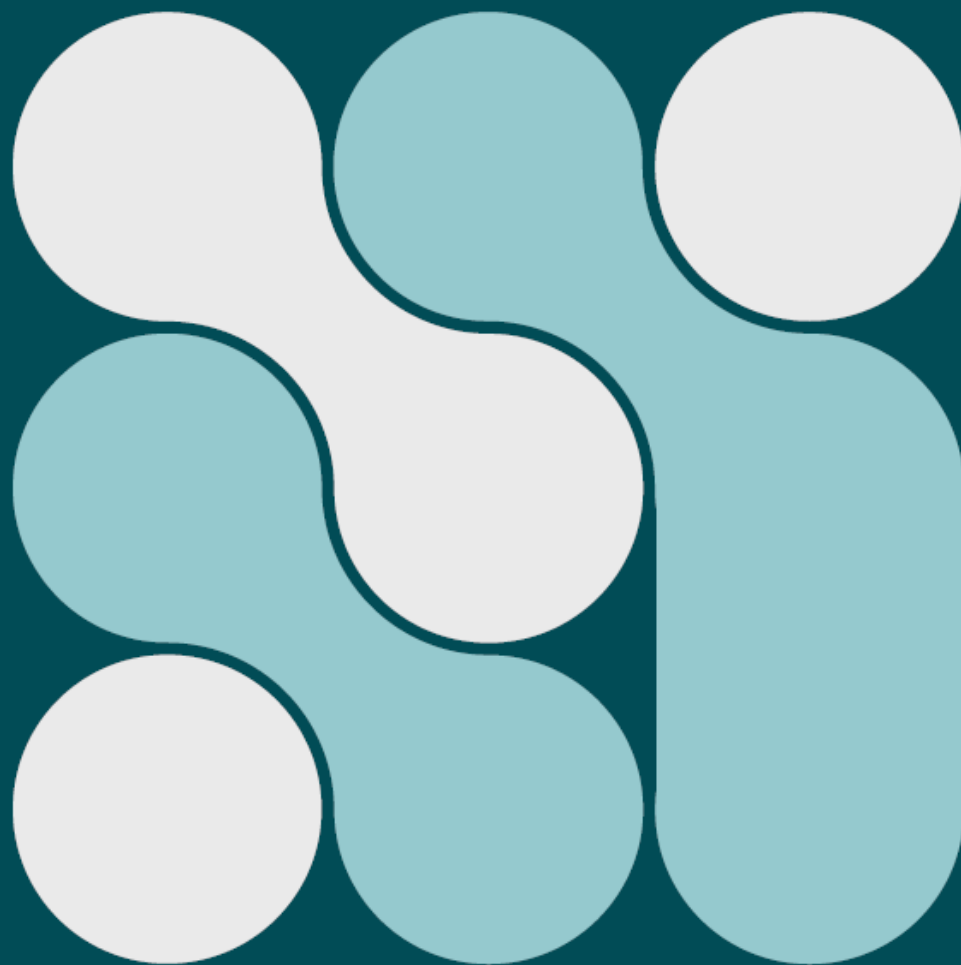
cerac

Analysis of the national state of play and insights from the international context

## Context

cerac

- Climate change is already increasing wildfire risks in many places worldwide... what about Belgium?
  - Following a proposal from the Belgian National Crisis Center
  - Cooperation agreement between Cerac and the National Geographic Institute (NGI)
- 
- Given the scope & (limited) available resources: preliminary & not exhaustive!
  - The aim was to raise awareness, and stimulate dialogue & collaboration in addressing our nation's wildfire challenges



## Is Belgium ready for more frequent and intense wildfires?



ceraac

Analysis of the national state of play and insights from the international context

## Main findings

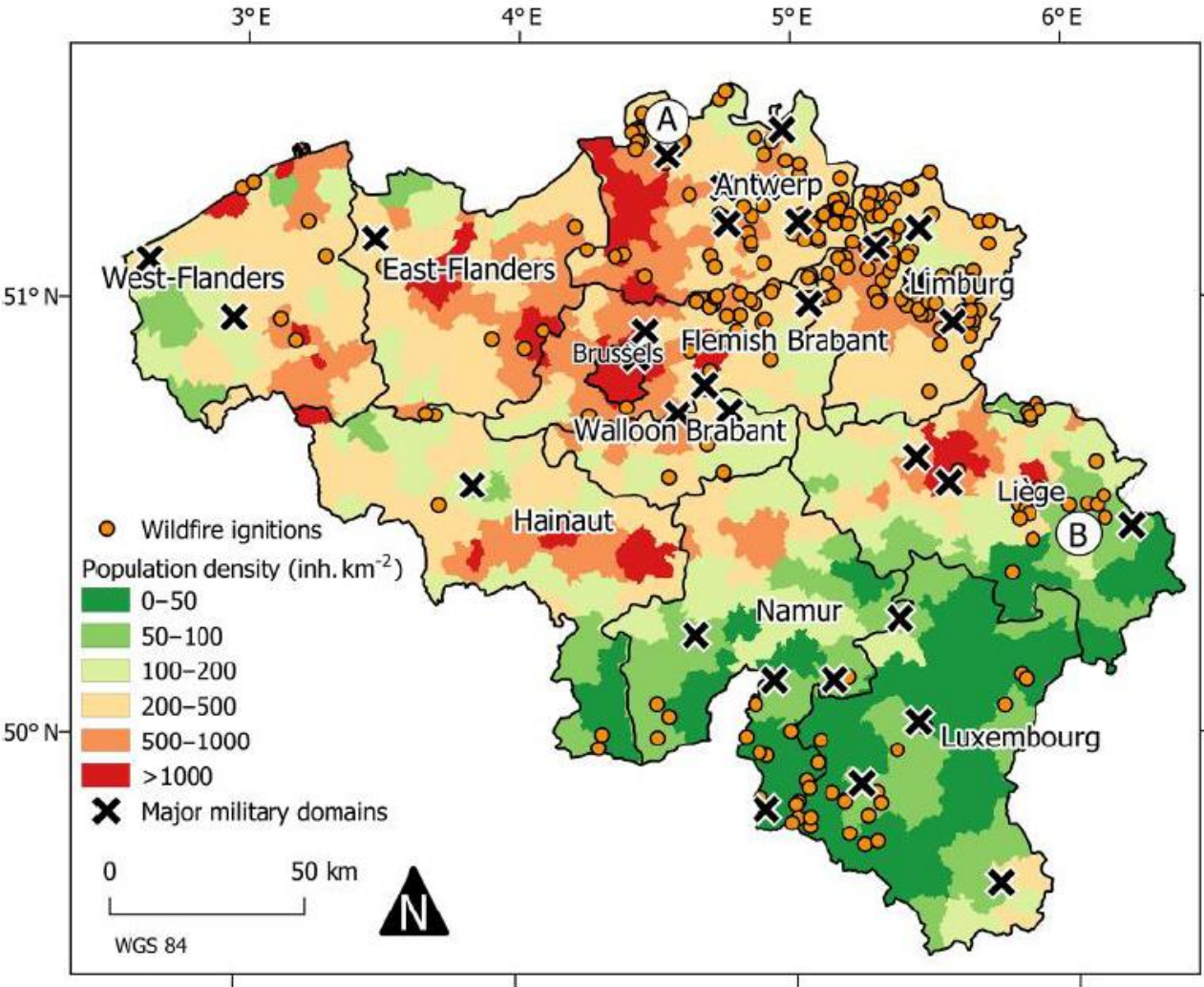
ceraac

- Increasing wildfire frequency & severity (next 15-20 years)
- Awareness but general lack of coordination
- Some political & institutional gaps (deadwood, forensic, ...)
- ...
  
- **Important historical (geo)data challenges:** no, partial, inaccurate/ biased, ... data recording
- Urgent need for robust **temporal and spatial modelling** of future risks



[Is Belgium ready for more frequent & intense wildfires? | CERAC](#)

# The need for better seasonal & spatial fire predictions



**Wildfire ignition probability in Belgium “picture” taken in 2016**

[Depicker et al. \(2020\)](#)

Figure 4: Map of wildfire ignitions in Belgium between 1994 and 2016 and the major military domains, together with an indication of population density. A and B represent the two wildfires that occurred in 2011 – A: Kalmthoutse Heide; B: High Fens (Depicker et al., 2020).



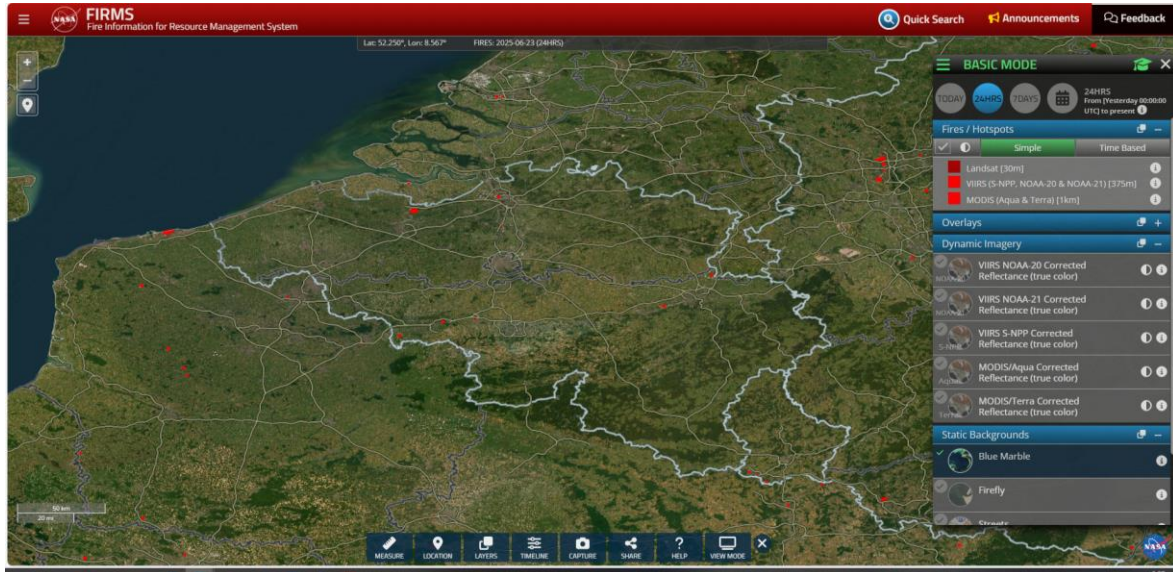
**Modelling  
with geo- & metadata**

**The way ahead!**

**cerac**

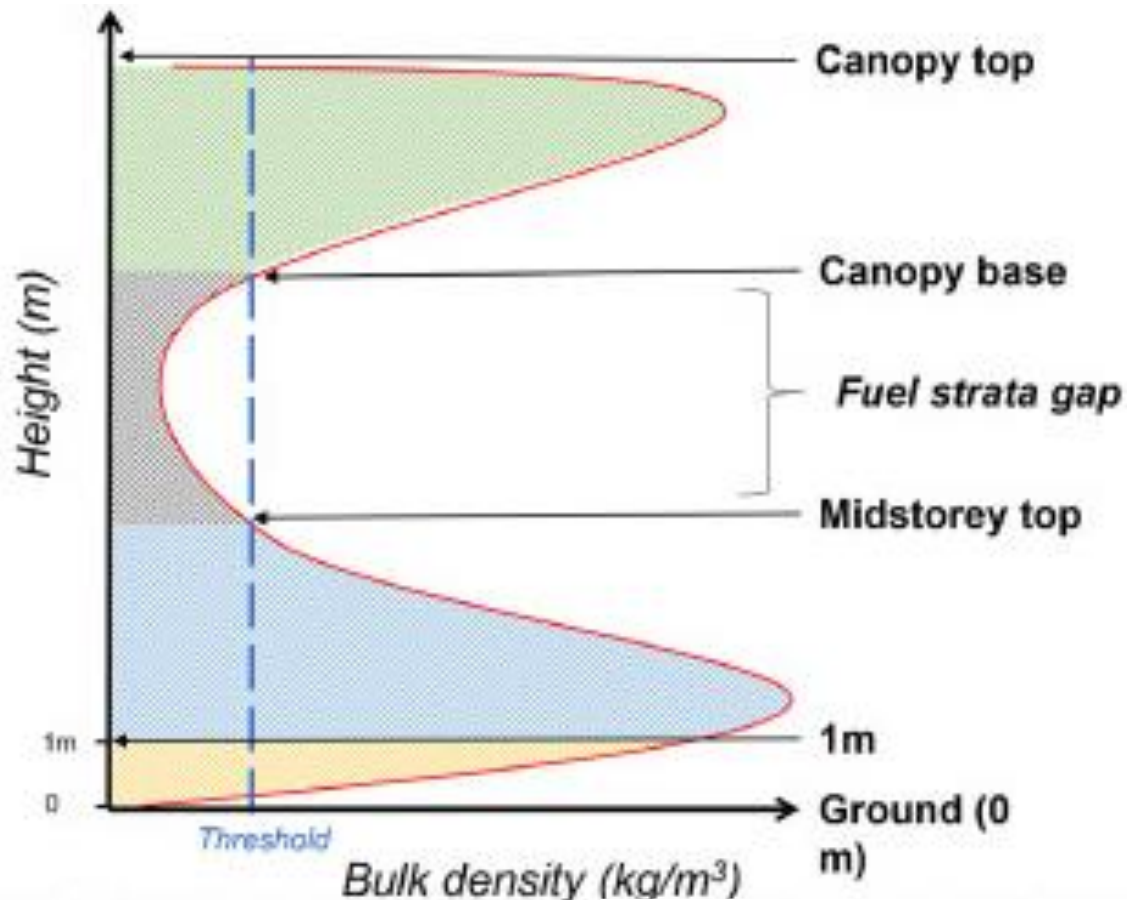
# Enhancing seasonal & spatial fire predictions

- Depending on soils, species, applied silviculture... Belgian forest ecosystems are already experiencing dramatic changes due to climate change (droughts)
- Observed shift of woody species, with **higher mortality rates** for some of them
- More (& drier?) **deadwood** (= more fuel) in these ecosystems



- Fuel assessment needs to be improved: when, where, which species/wood density, moisture, volume, etc.
- Thanks to regional forest inventories & permanent plots, remote sensing, regional (ANB/BruEnv/DNF) expertise, ...
- Assess ignition risk and tailor fire prevention measures by mapping fuel type & load over time

# Enhancing seasonal & spatial fire predictions



Fuel load (Kg/m<sup>2</sup>) :

- Canopy
- Strata gap
- Continuous midstorey
- Elevated surface

*Adapted from Martin-Ducup et al. (2025)*

Chronologically:

- Initiate **reliable fire data recording**: area burned, emerging fire regions/locations, wildfire causes/origins & occurrence, wildfire general statistics (cf. [Stoof et al., 2024](#))
- Establish a **model** to describe, on a national scale, the main characteristics of the **fuel potential** of woodland ecosystems (cf. [Martin-Ducup et al., 2025](#))
- Carry out a **robust assessment** of the risks to Belgium of **wildfires ignition & spreading** (where, when)

UN-GGIM Europe plenary meeting  
Brussels – July 25, 2025



Thank you for  
your time and  
attention

Dr. Ir. Nils Bourland  
[nils.bourland@cerac.belgium.be](mailto:nils.bourland@cerac.belgium.be)

Karim Sheikh Hassan  
Aurore Brunson  
Luc Bas